TECHNOLOGY DEPT.

Gas Journal

Vol. 264. 102nd Year. LONDON, OCTOBER 4, 1950. No. 4557. Price 1/-

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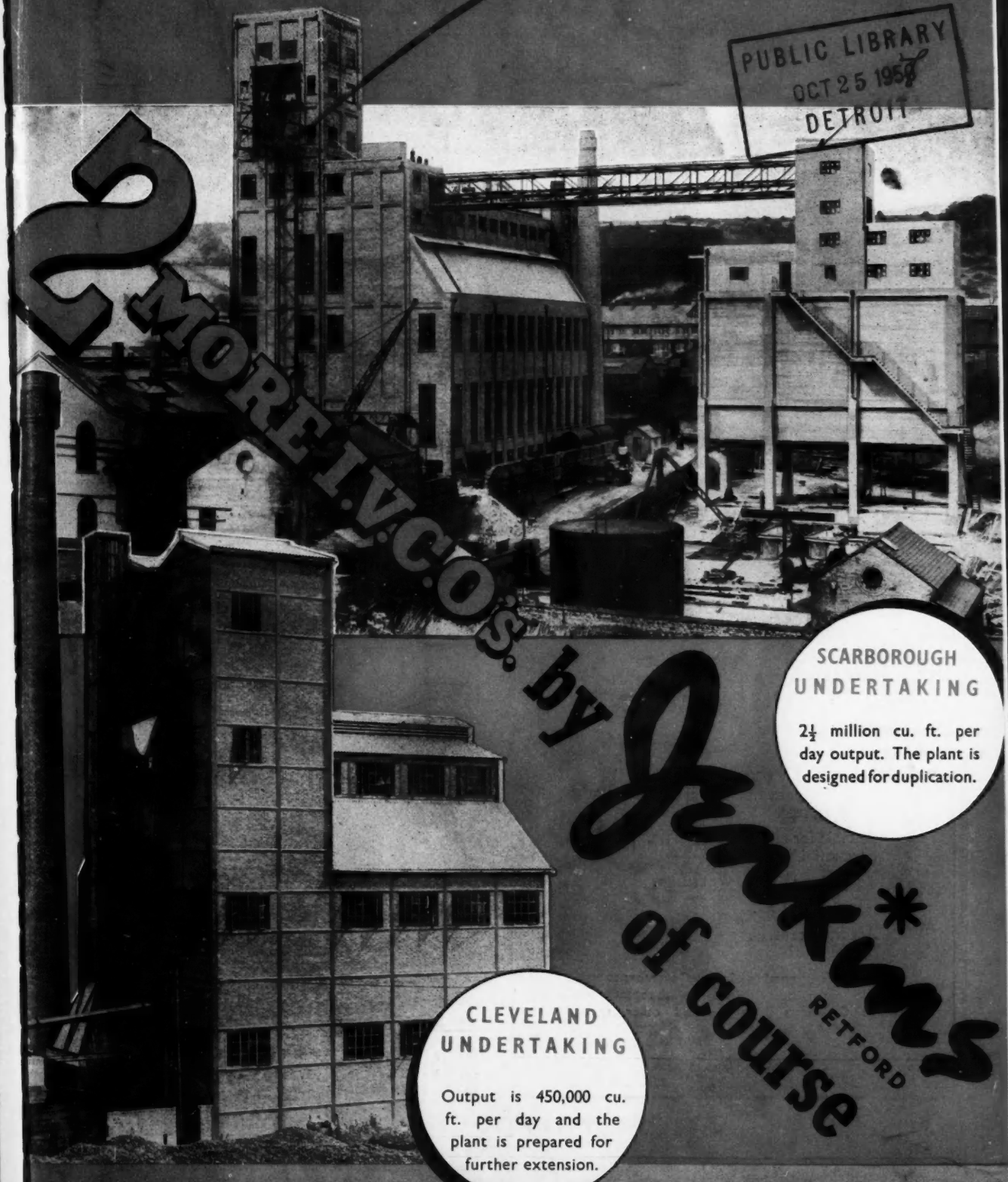

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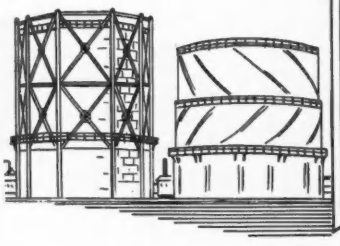

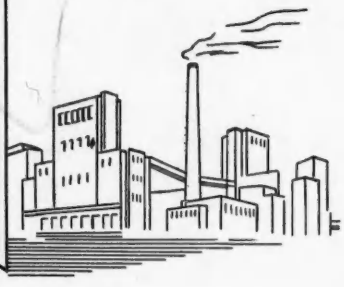

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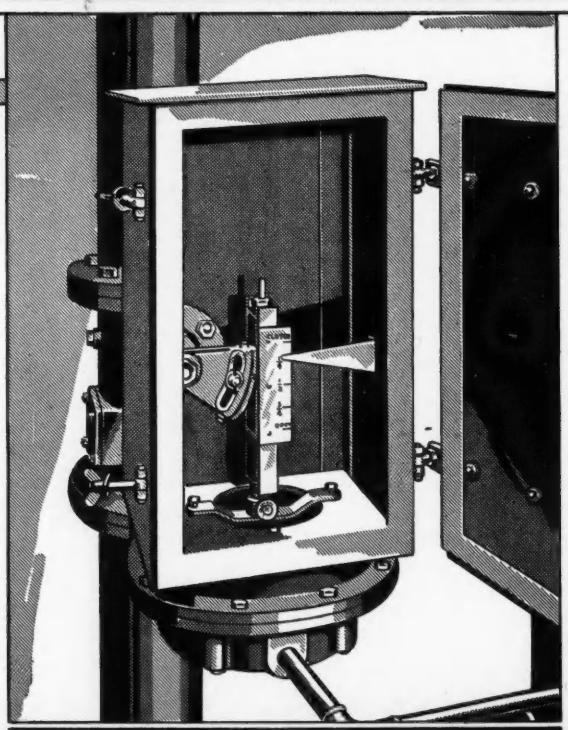

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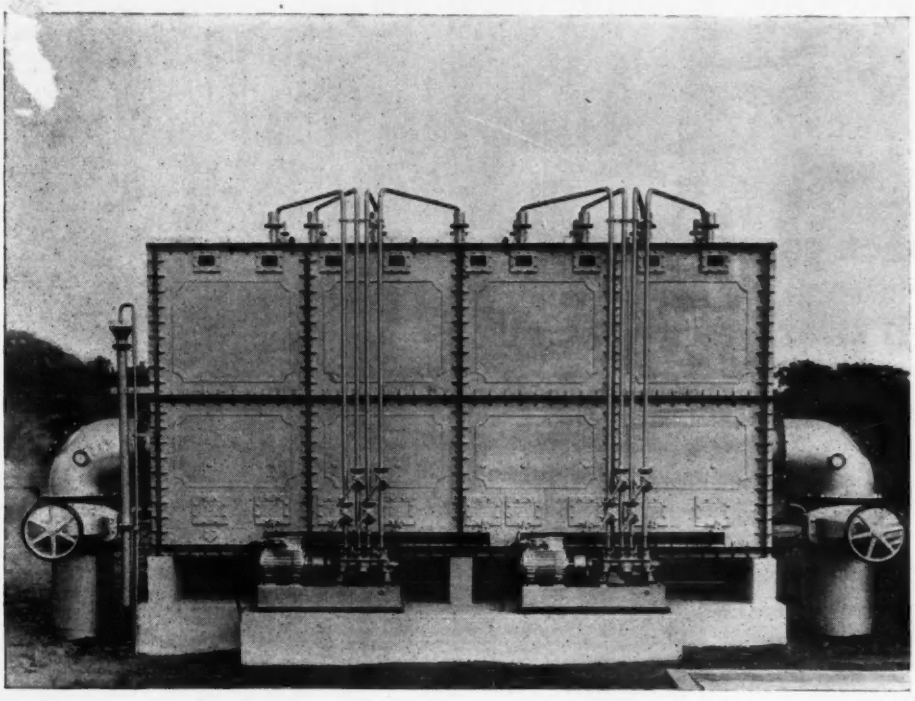

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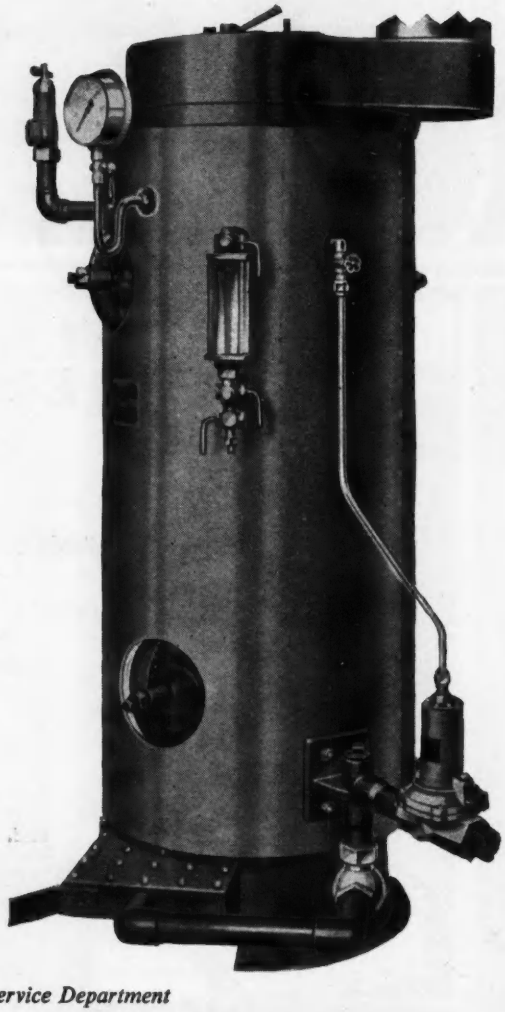

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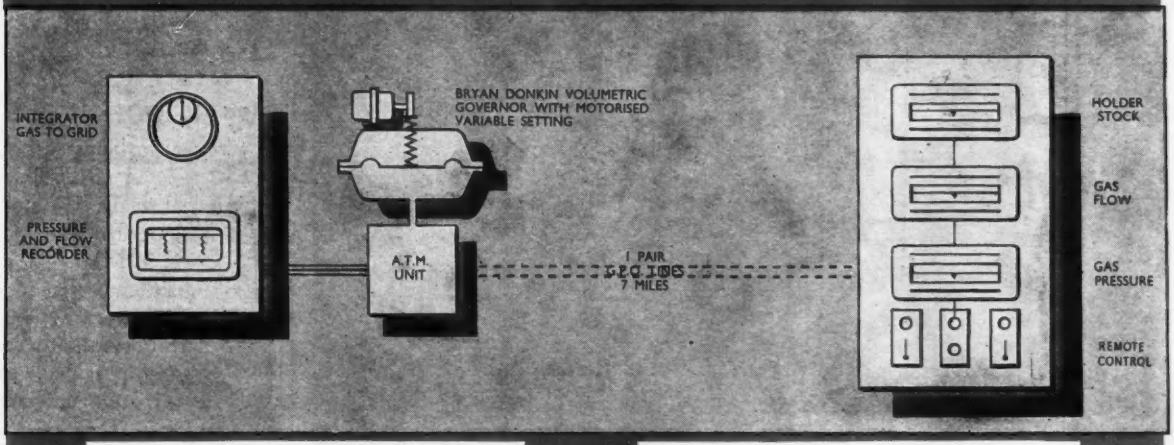

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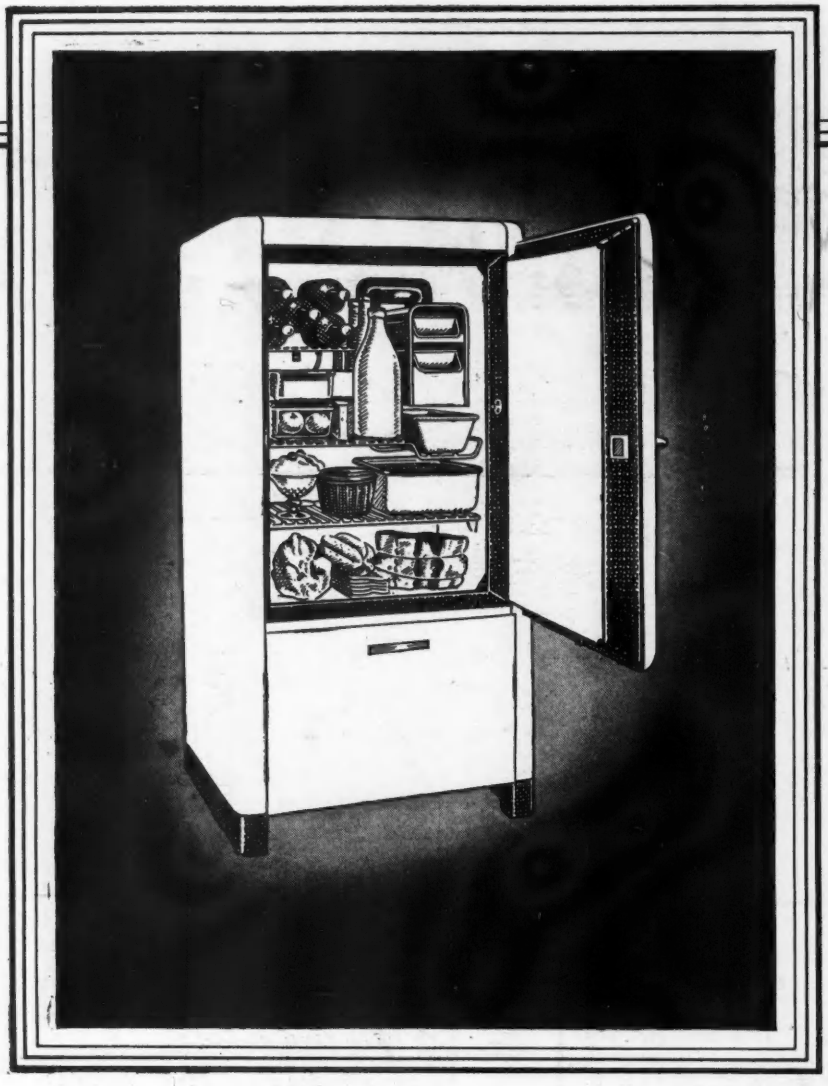

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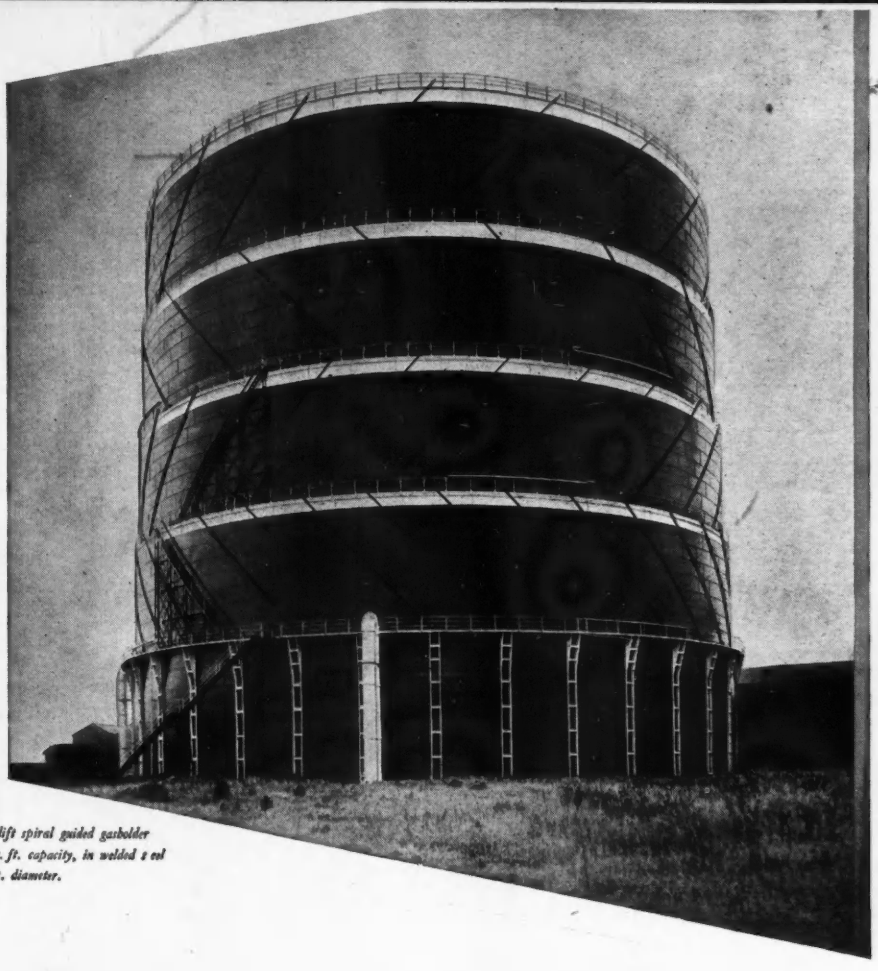

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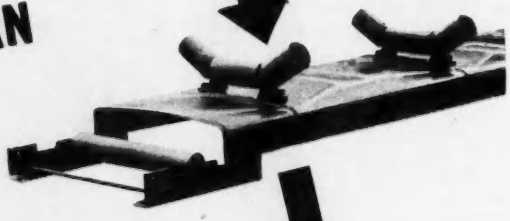

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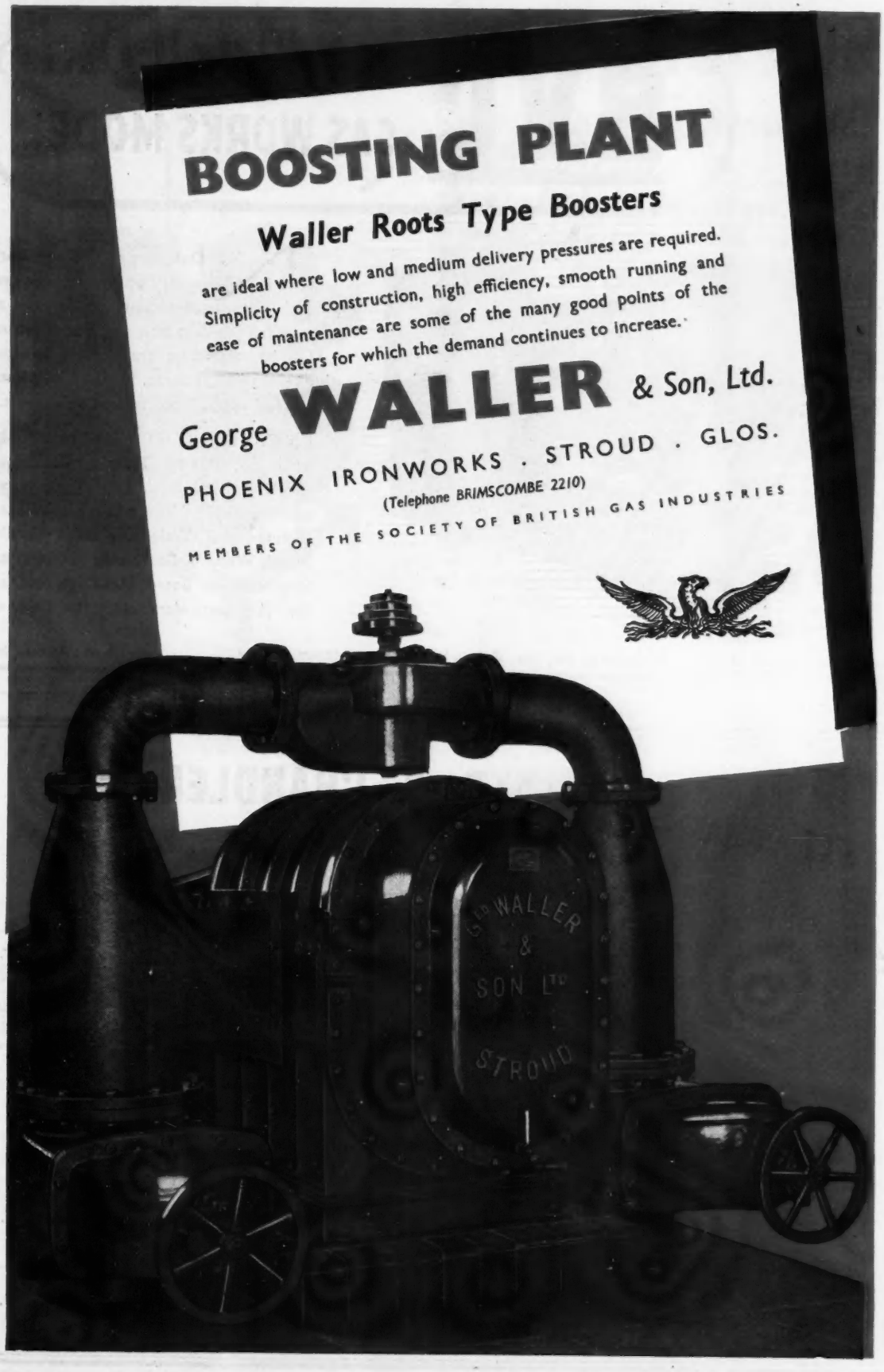
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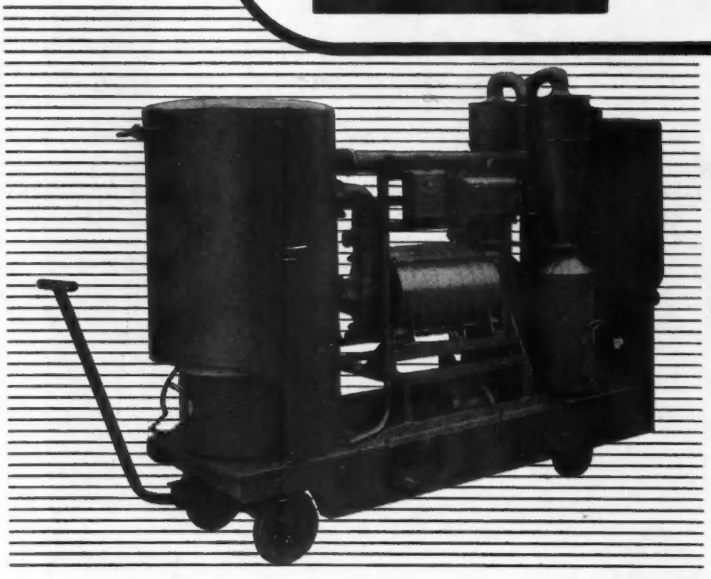

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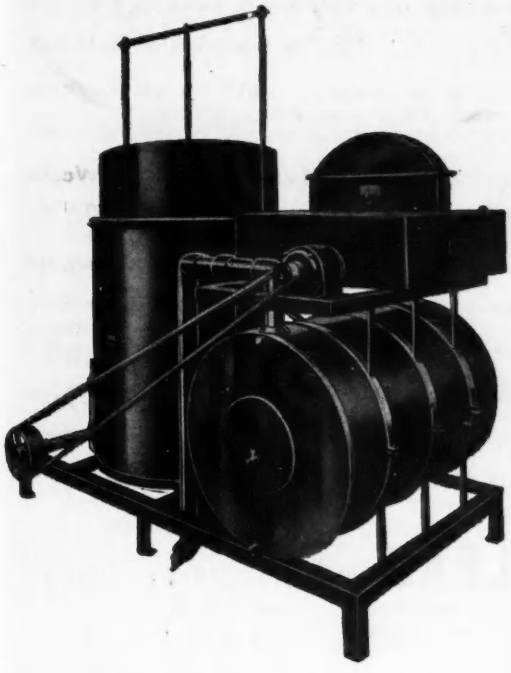

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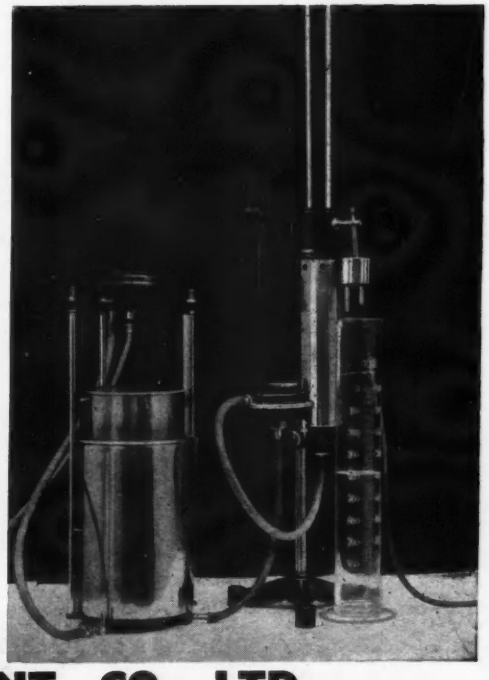

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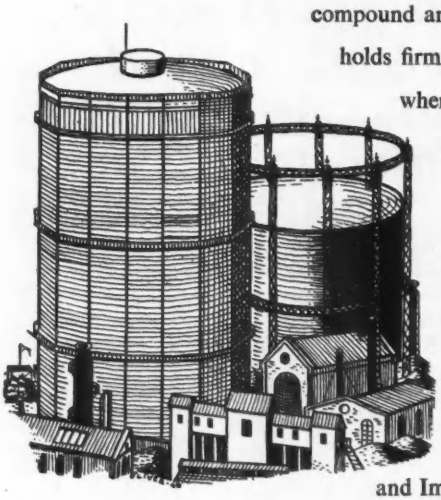

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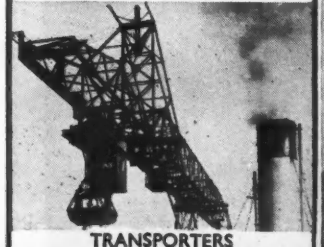

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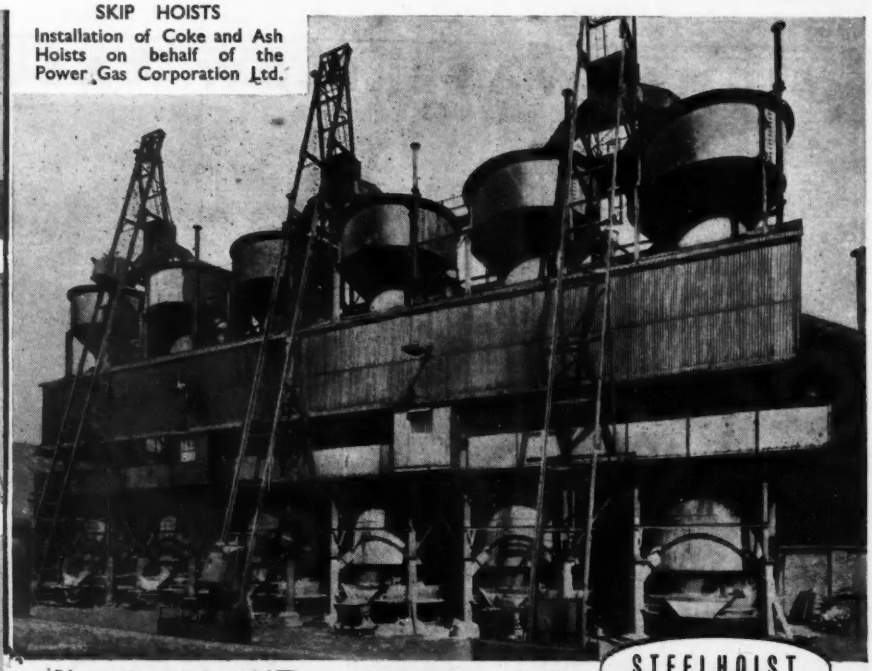

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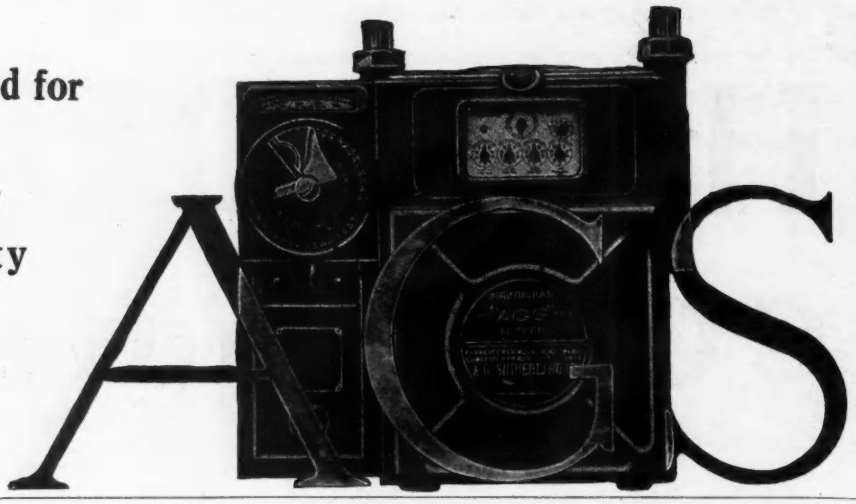

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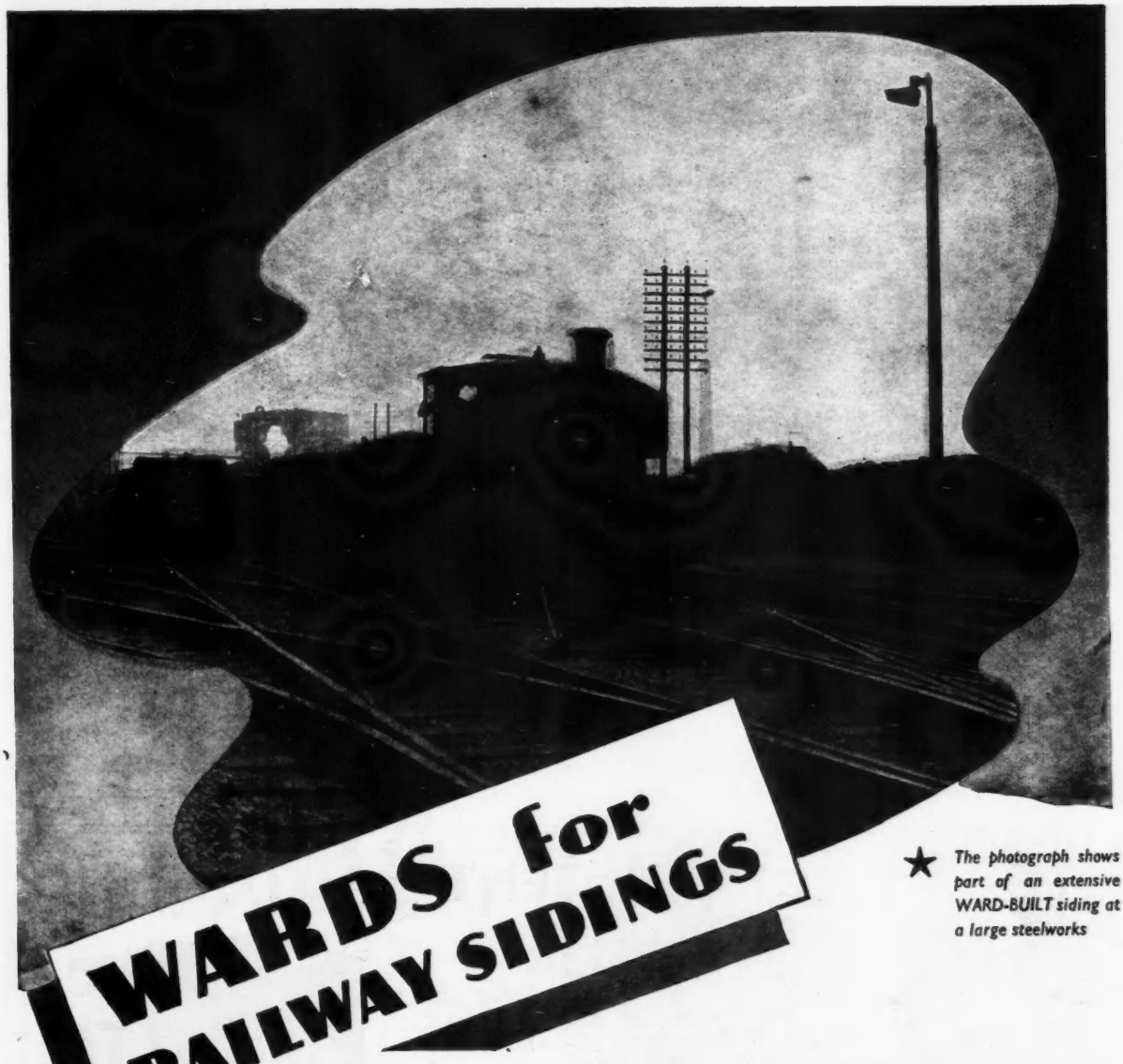

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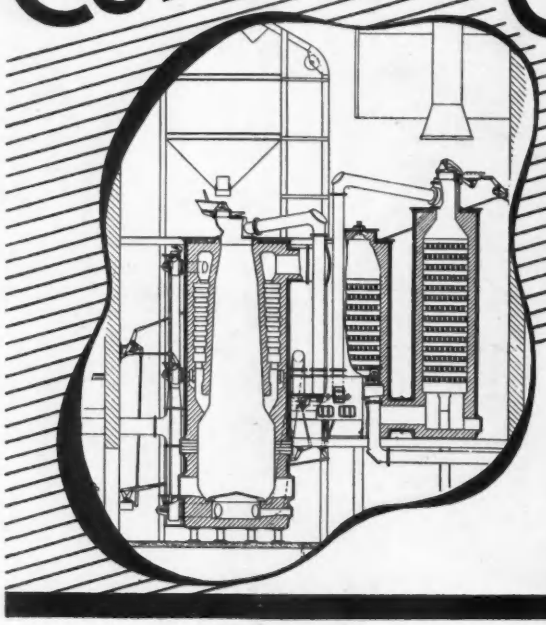

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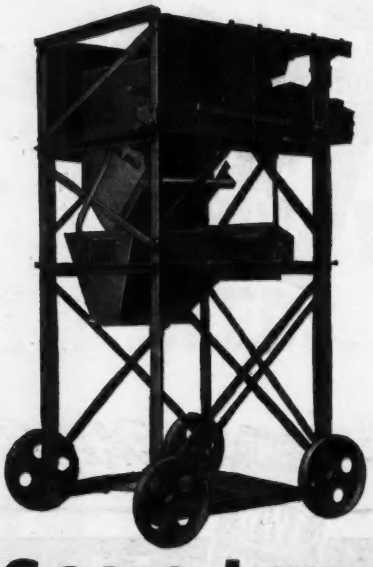

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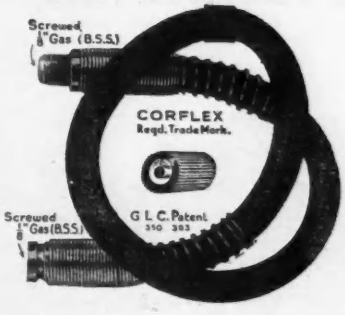

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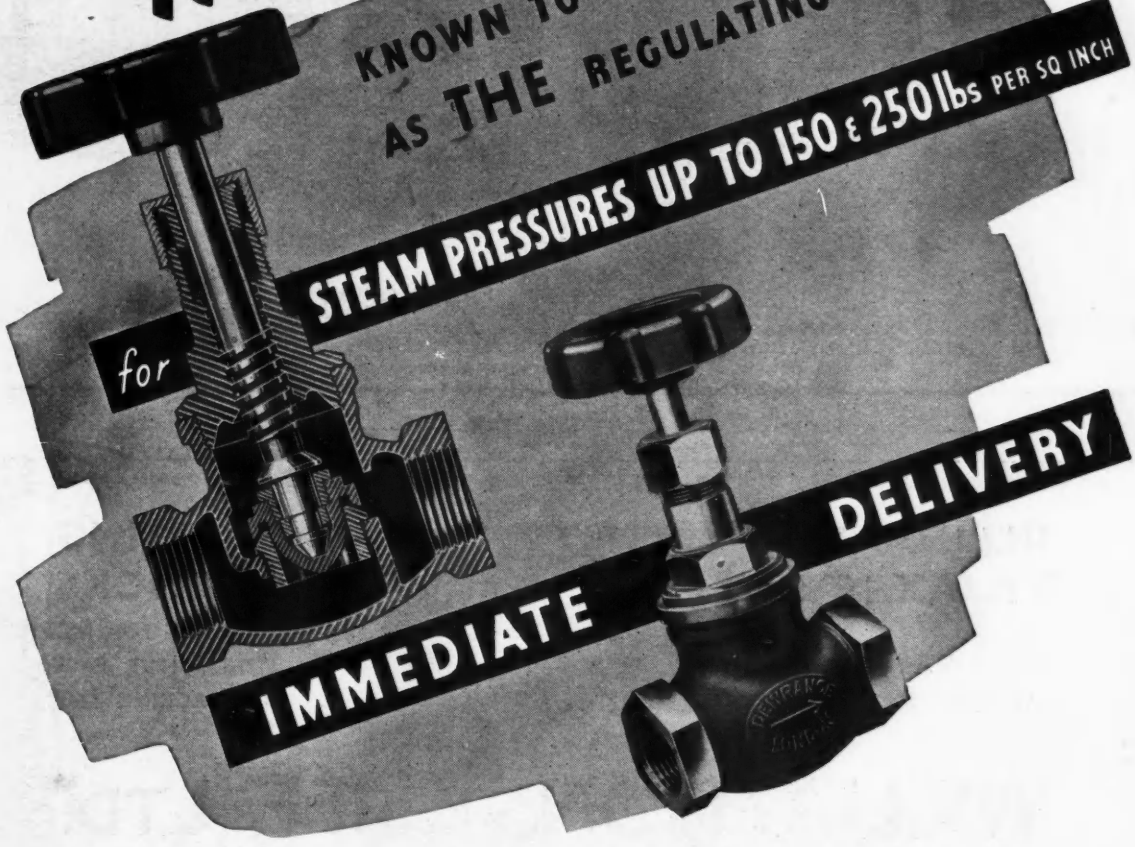

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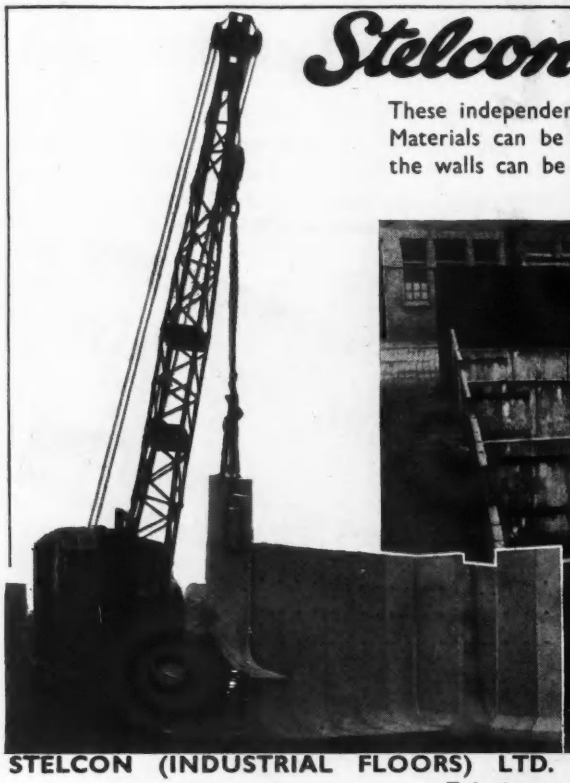

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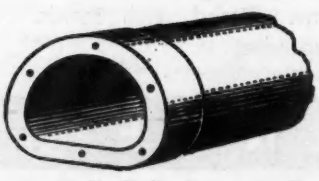

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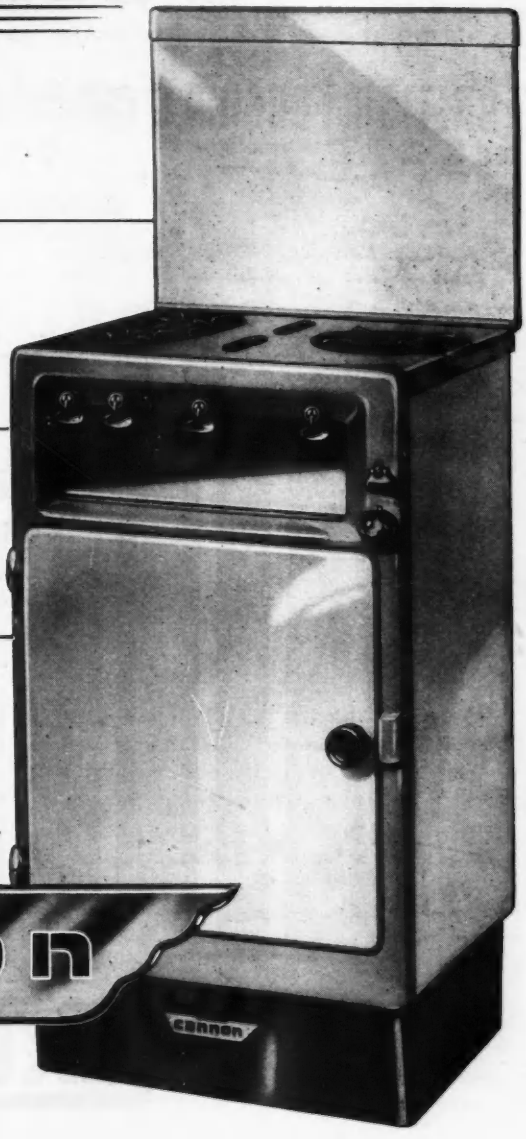

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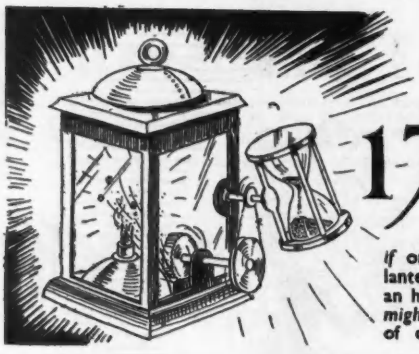

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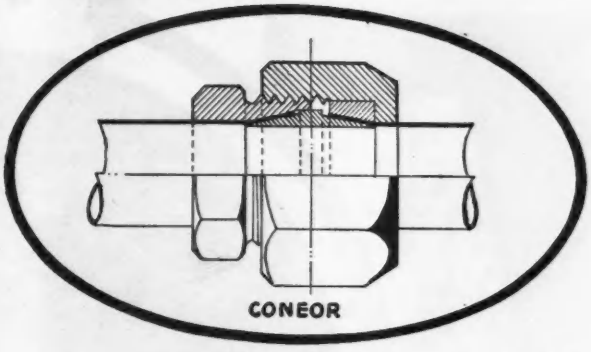

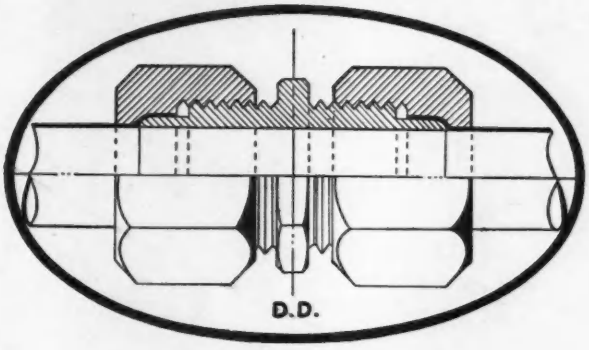

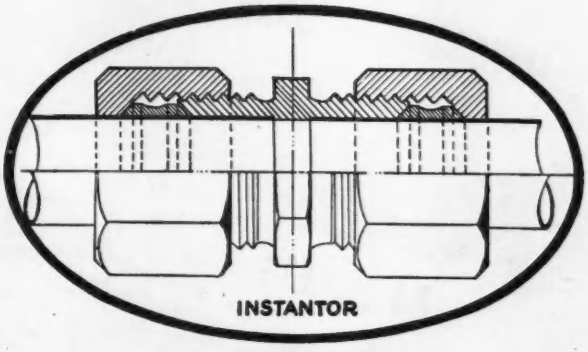

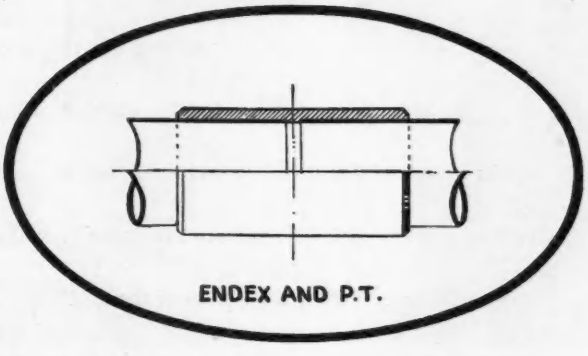

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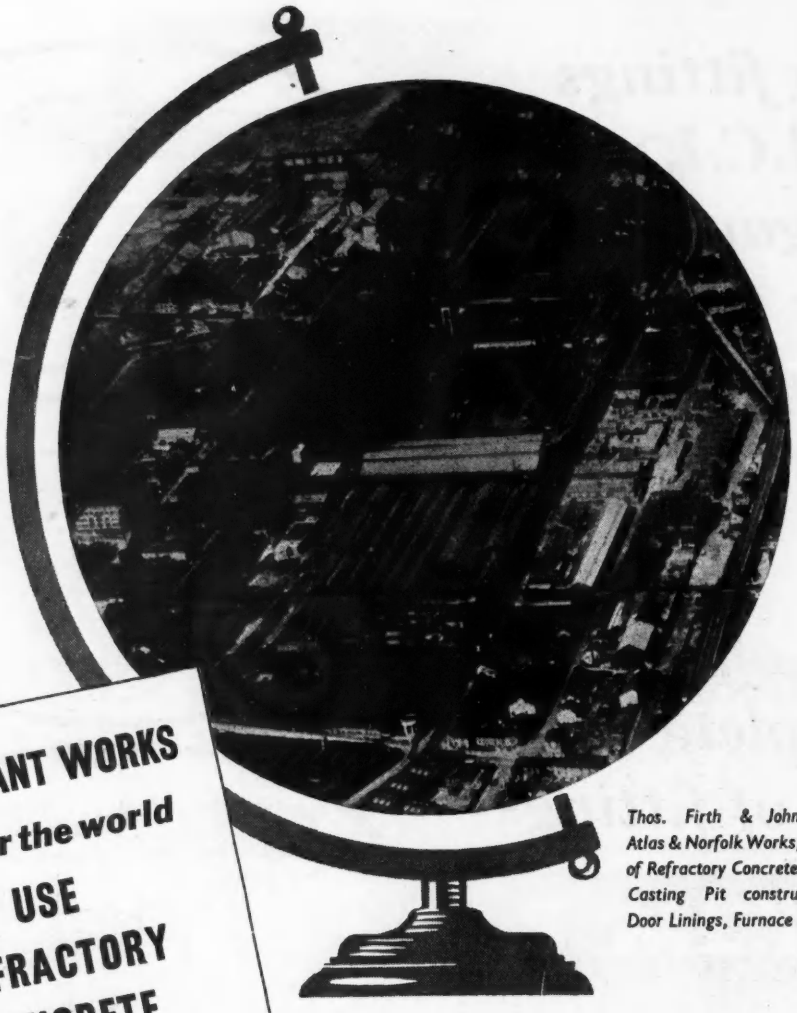

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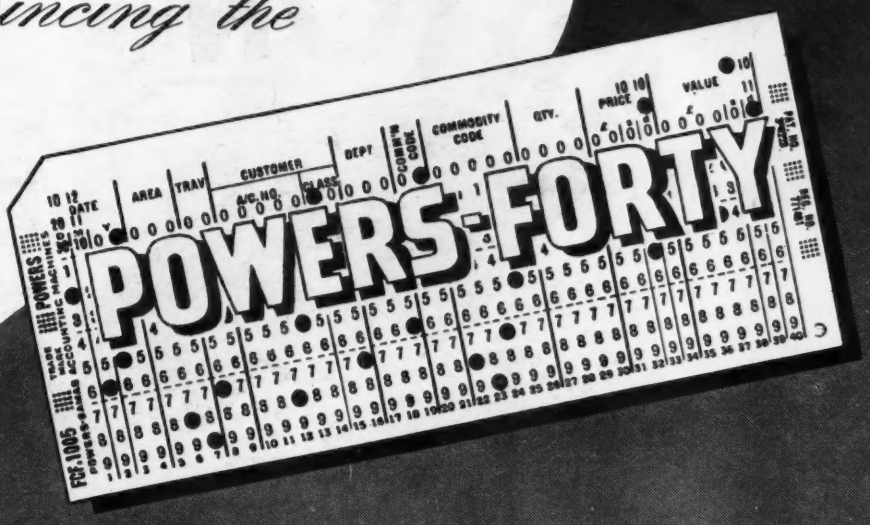

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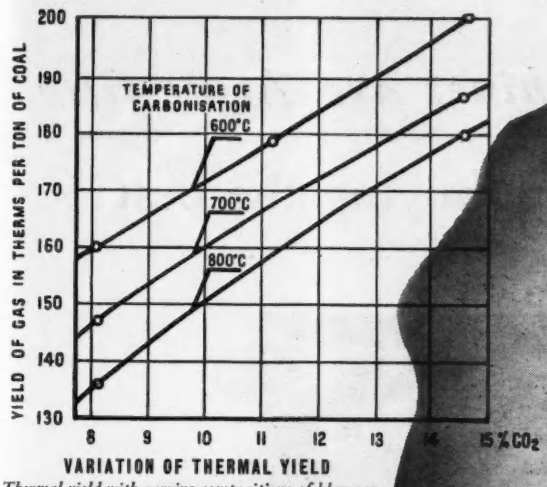

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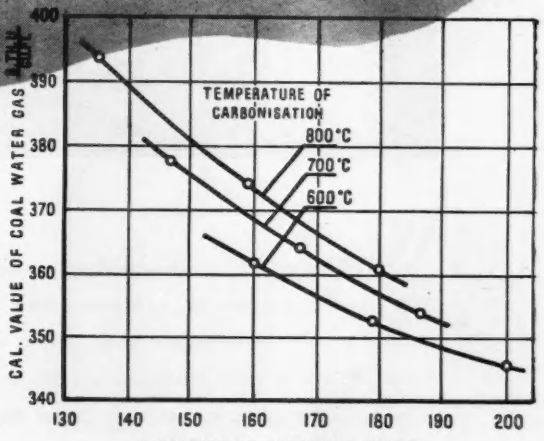

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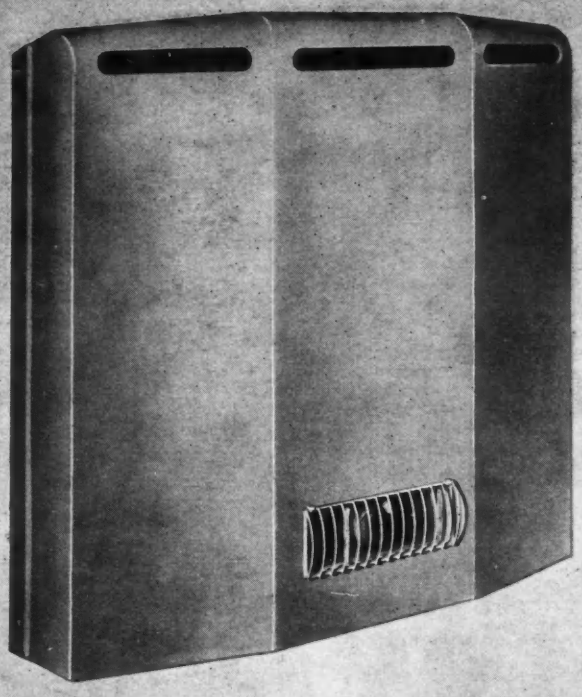

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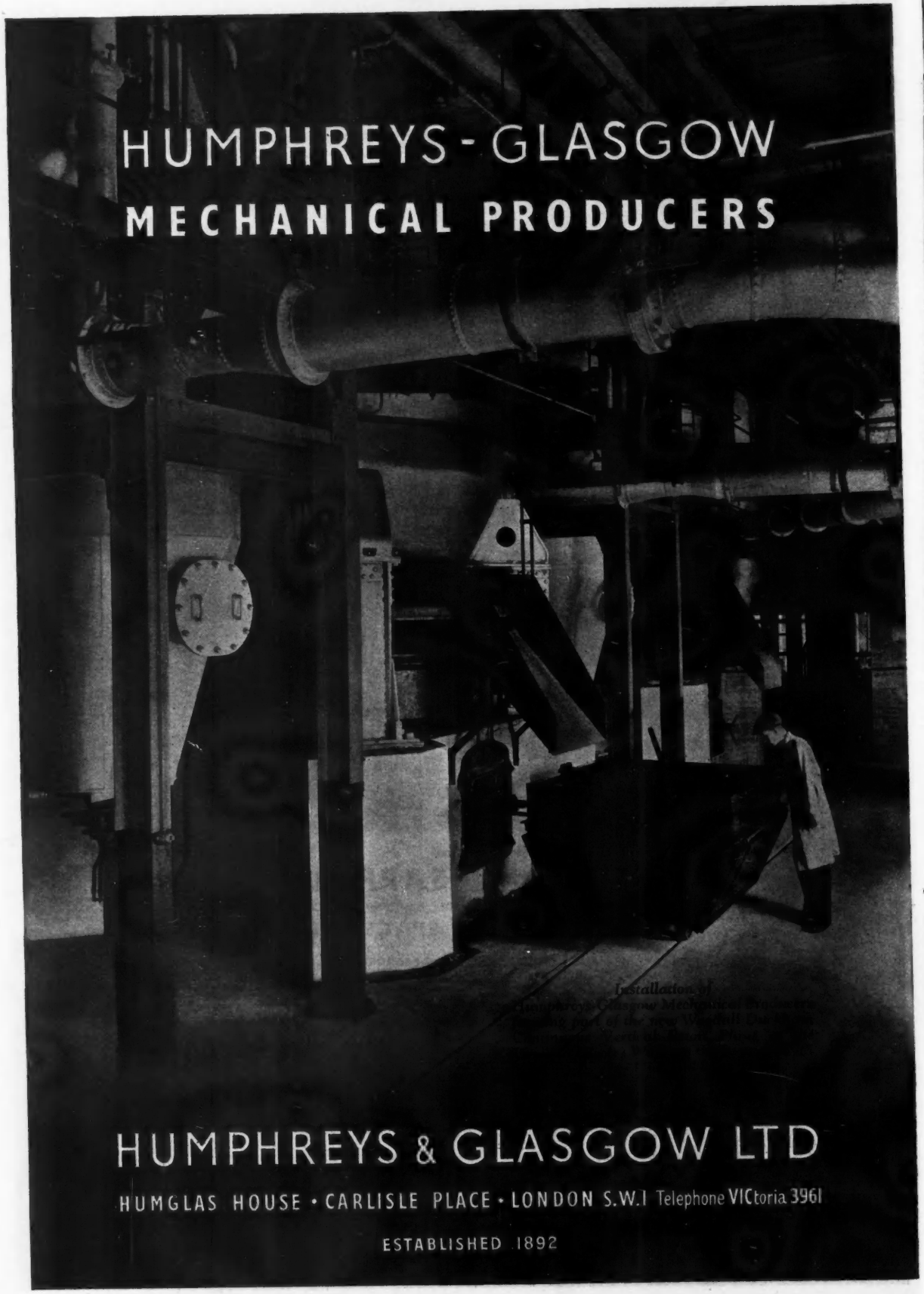
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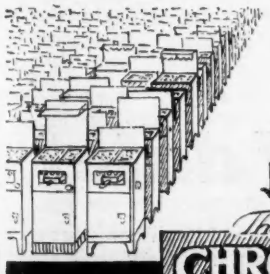

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Gas Journal

102nd YEAR OF PUBLICATION

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VOL. 264 NO. 4557 OCTOBER 4, 1950

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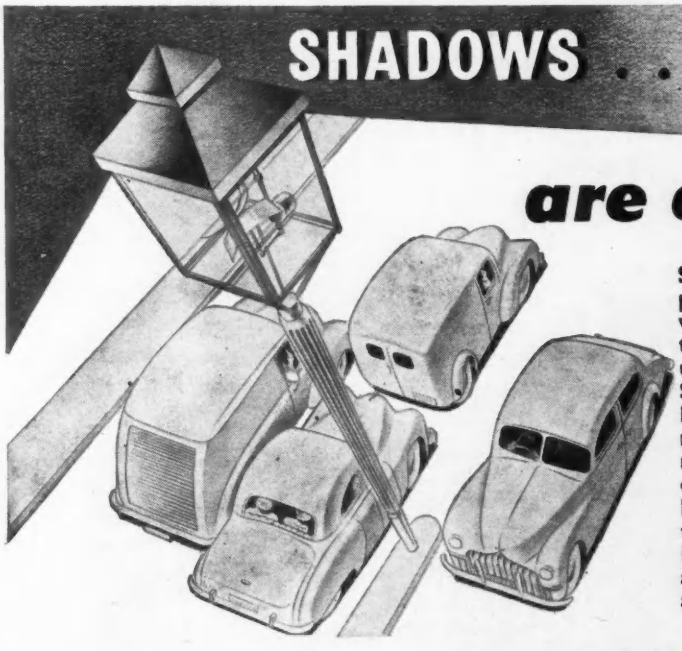

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GAS JOURNAL

VOL. 264. No. 4557 102ND YEAR OCTOBER 4, 1950

SALES AND MAINTENANCE

CONTROVERSY whether the cost of maintenance of gas appliances should be charged to the cost of gas, concealed in the price of gas, or charged openly and directly to the consumer has long raged. One thing is certain. Maintenance is absolutely necessary, and we hope Mr. Robert Cowie's weighty and witty paper presented to the North British Association of Gas Managers and published in later pages of today's *Journal*, will be taken to heart by the shapers of gas policy. The paper is brimful of hard-hitting points. We are not sure that this question of maintenance is not the most vital of them all. We have so often said we sell gas service. Can it be denied that service is not complete until it is ensured that every appliance is so maintained that gas is utilised to the full capacity of its effectiveness and economy?

It may be argued that 'free' maintenance fails to penalise the consumer who neglects the appliance in his (or her) possession. That is true, but some way must be found to persuade him to keep his apparatus reasonably clean. This is where periodical visits of a tactful home visitor or industrial gas inspector can be useful. Every appliance which is not giving satsfactory service is a source of danger. The remark that 'the damage which a poor installation does is incalculable' leads to the further conclusion that it is doubtful policy, to say the least, to install apparatus in situations where satisfaction is unlikely. In this connection installations in old existing property need careful watching; hot water installations particularly Probably complete satisfaction cannot be given until houses and premises are designed and built expressly to suit the use of gas for cooking and water and space heating. The experimental houses built and fitted up by Radiation Ltd., are helping to show us how this can be done.

We are trying to disentangle the elements of general policy, strategy rather than tactics, from Mr. Cowie's lively paper. We are not sure we like to follow him in the direction of adding tar as a third form of fuel to be regularly offered by the gas industry. The complications introduced by coke seem to be enough to be going on with. No one must 'go on selling gas in ever increasing quantities with no regard to the economic disposal of tar and coke.' But is not the correct attitude to make the very most of the revenue-earning possibilities of these solid and liquid residues without detriment to the main product? For instance, with the present high ash content of the coal supplied to the gas industry, can coke be anything but a rather inferior fuel? True it can be carefully sized and thoroughly de-dusted. And in spite of the high prices charged it finds a ready market under suitable conditions. Whether the open fire is altogether the best field for the use of coke is doubtful—the inordinate ash content leads to dust trouble in the room. Here there is an amusing point. Mr. Cowie remarks that thousands of coke fires are sold by ironmongers who never mention coke and bought by people who neither know nor care about either coke or gas ignition. They are just good fireplaces. Constant follow-up by the home visitor might at least ensure that the advantages of gas ignition were brought to the notice of the consumer—even if he continued to burn coal in them! It must be recognised that the production of a really good clean coke is a very difficult proposition. We do not see how it can be solved without the use of a really good clean coal to start with.

Turning to tactics, no one will doubt the value of home service, of the attraction of a good showroom window in the main street of the town, of skilful advertising, of ruthlessness in dealing with bad services, of a systematic survey of the district served, and a card system upon which observations are recorded and necessary action taken—to touch on only a very small proportion of the valuable suggestions put forward by Mr. Cowie. And we like the idea that the chairman of the board, accompanied sometimes by the chairman of the consultative council, should 'occasionally emulate the mediaeval kings' (or was it, sultans?) 'who went about incognito to find out exactly what their subjects were thinking' and doing.

GROUP WORKING

THE discussion in detail of this subject by Mr. Norman Sturrock at the same meeting was a useful complement to Mr. Cowie's paper. The author, whose contribution was published in full in the *Journal* last week, brought to it a wide previous experience of working with three groups, one solely dependent on outside supplies, one with a group in which were some districts with their own production plant, and one with all districts almost entirely dependent on their own resources for gas production. He recognises fully that the administration and organisation of any given group must grow naturally out of the characteristics of the group and the nature of the load to be carried.

In addition to the district engineers and managers—the local engineers and managers of the old regime—what group officials are necessary? Keeping these appointments to the minimum, Mr. Sturrock suggests there should be a general manager, an engineer, a distribution engineer, an industrial engineer, a sales officer, and an accountant, with the wise proviso that each of these appointments should be justified by a corresponding economy in work. He discussed their several duties in detail and there is in fact little to criticise in his comments.

One wonders whether, recognising to the full the necessity, importance, and advantage of group technical control, there would not be cases of a highly concentrated group where the general manager might also retain the duties of group engineer with one or more technical assistants each with appropriate duties. One of the improvements which is expected of the new regime is that the technical results even in the small works mentioned by Mr. Sturrock shall be brought into line with what is easily possible with modern methods of practice and control. And here may be mentioned the importance of keeping the district engineer and manager interested in his results and in the developments before him. Too many works are still waiting for new plant, repairs to existing plant, and other developments; and it is of the utmost importance that quick decisions should be taken at board level and that the district engineer and manager should be informed, early and well ahead, of the board's policy and intentions with regard to his own undertaking. Only if he can still feel that it is his own undertaking will he give it that unstinted service with pride of achievement which contributed so much to the healthy condition of the best undertakings under the old regime. The problem is to bring the backward undertakings up into line without robbing the best undertakings of their initiative and enterprise.

The suggested organisation of group squads for the several departments of maintenance and repairs is wholly admirable. Pressure surveys, and we hope market surveys —on Mr. Cowie's card system perhaps—are perhaps best carried out by or under the district engineer and manager, at any rate in the larger and more compact undertakings, though the group distribution engineer might well be greatly interested, while in the smallish undertakings he might have to be solely responsible. The larger problems of linkage and extension to outlying districts would necessarily fall to the group distribution engineer.

For the appointment of the group district engineer there is everything to be said. It is the natural development of the industrial gas organisations of the old regime. It brings the advantage of the wide experience of the great industrial centres to the service of the smallest undertaking. We can take Mr. Sturrock's word for it that this service is usually very much appreciated by the industrial consumer, who thereby feels himself in touch with the best modern practice.

The economies which can be affected by a group sales office and a group sales staff are also pretty obvious and were well set out by Mr. Sturrock. But here again the local knowledge of the district sales staff must be fully used. Personal contracts must not be thrown away. Accountancy, stores and purchases, transport (especially in a widely dispersed group), appliance and meter repairs all lend themselves to organisation on a group basis.

The group general manager is the king-pin of all this structure. Upon his personality rests the growth of the team spirit and prompt decisions, upon his ready access to the inner counsels of the area board, upon his close personal contact with his district engineers and managers, will depend the smooth, happy, successful working of whatever organisation he ultimately adopts.

Finally we are glad to see and hear on all sides the development of many pleasant social and sporting activities. These will go a long way to sweetening the atmosphere in which all will work in the best interests of the gas consumer.

THE MANXMAN'S TAIL UP

THE voice of a non-nationalised undertaking rang out loud and clear during a discussion at the North British Association of Gas Managers in Oban. It added a touch of merriment to a lagging discussion and came as a breath of air. The owner, a Scot from the Isle of Man, advocated not the selling of gas so much as the selling of personality. A sound proposition. The man in the public eye, even though it may be in only a small community, will sell his commodity (and in gas he has a good one) easier than he who remains aloof. Potential consumers will go to a known man for advice on their problems, while they remain shy of the Engineer, who is unable to advertise himself directly. Forcefulness and thrust are not necessary in attaining this position, although the picture comes to mind of a new Engineer running full hard with his head bowed murmuring 'I'll get there in the end.' spectral chains of office before him. There is great merit in this theory of salesmanship—selling yourself before your appliances—anyway in the larger sphere. Undoubtedly Mr. A. R. Bisset, of Douglas, has got something and knows how to put it over.

Personal

Councillor **C. F. Seaton** (Plaistow) has been appointed a member of the North Thames Gas Consultative Council.

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Dr. **G. W. Anderson,** F.R.I.C., will retire on October 1 from his position as an Assistant Engineer at Beckton gasworks, where he spent most of his 20 years' service with the former Gas Light and Coke Company and the present North Thames Gas Board. Dr. Anderson was born into the gas industry, being the son of the late William Anderson, Engineer and Manager of the gas undertaking at Hanover, belonging up to 1917 to the Imperial Continental Gas Association. In 1908 he entered the service of this Company in London, and was later attached as pupil to their works at Hanover and Berlin. During this period he

studied chemical engineering at the Hanover University, where he graduated and where he also took his Degree in the same Faculty in 1913. During the first world war he was interned in Germany as a British subject. Following repatriation after the end of hostilities, he took up an appointment with the South Metropolitan Gas Company. He served this undertaking for 10 years, first as Works Chemist at East Greenwich, and later as Senior Works Chemist, being responsible in the latter capacity for the technical and economic efficiency of gas production at the five stations of that Company. In 1929 he resigned his position and established himself as a consultant in fuel technology. As such, he acted as adviser to the Area Gas Supply Committee for South Yorkshire, and later (1936) served in a similar capacity the Departmental Committee on Gas Supplies in the West of Scotland. In 1930 he joined the Gas Light and Coke Company, becoming an Assistant Engineer at Beckton, a position which he held until his retirement. Dr. Anderson has written extensively in the technical Press, both under his own name and under the nom de plume 'Proteus,' and has presented papers in joint authorship at World Power conferences. For some time he acted as co-Editor of the Journal of the Institute of Fuel and has served on the Publications Committee of that Institute for many years. During the current month he was made a Life Fellow of the Royal Institute of Chemistry, of which he has been Associate and Fellow for 30 years.

Obituary

Mr. **Harry Rountree,** the well-known artist, who died last week, for many years delighted with his attractive drawings the readers of the Women's Gas Council leaflet *I Pass This On To You.*

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Mr. **George Senior,** until recently a Director of General Refractories, Ltd., Sheffield, died on September 16 after a long illness. Mr. Senior, who was 60 years of age, had been associated with the Company for 31 years and was a Director for the past 15 years.

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R. J. MILBOURNE

With regret we record the death of Mr. Robert J. Milbourne, J.P., which occurred at his home at 'Wynholm,' Wellington, Shropshire, on September 23, in his 87th year. One of the best known figures on the contracting side of the gas industry for many years, Mr. Milbourne was Chairman and Managing Director of C. & W. Walker, Ltd., Donnington, until failing health made it necessary for him to relinquish the position in 1945, but he remained a Director until the time of his death. He was born in Sunderland and educated at Milton House Academy there and at the City of London College, obtaining his theoretical training in the latter establishment, mainly under Professor H. Adams and Professor H. Angel. After serving his pupilage under the late Charles and William Walker he was for several years chief technical assistant to Mr. F. Southwell Cripps, consulting gas and water engineer, of Westminster, and afterwards he joined C. & W. Walker, Ltd., at Donnington. Mr. Milbourne gave his name to purifier valves and grids and took out a number of patents in connection with luteless purifiers, valves, rapid fasteners, and other inventions, all of which proved very successful. He was elected Chairman of the Council of the Society of British Gas Industries in 1928, and in that year he gave a paper on 'Gasholder Sheeting.' He had been a Director of a number of Gas companies before nationalisation, and was a J.P. for the county of Shropshire.

1950 'Journal' Directory

The following changes have been notified during the past month. To keep the information of the 1950 edition of the *Gas Journal Calendar and Directory* up to date readers are advised to note these alterations (together with the appropriate adjustments relating thereto in the 'Personnel' section, pp. 135-148a):—

Page 22.—SOUTH EASTERN GAS CONSULTATIVE COUNCIL: Add Alderman H. Burden (Hastings).
„ 23.—SOUTHERN GAS CONSULTATIVE COUNCIL: Add H. C. Higgs (Basingstoke), Councillor J. L. L. James (Weymouth), Alderman Mrs. D. M. A. Crompton, M.B.E., J.P. (Winchester).
Page 27 & 28.—SHEFFIELD AND ROTHERHAM DIVISION: *Divisional Sales and Service Manager,* W. J. Steed.
„ 24 & 57.—GAS COUNCIL AND NORTH WESTERN GAS BOARD: Delete Colonel W. Moncrieff Carr, C.B.E., T.D., M.INST.F., retired. D. P. Welman, M.I.MECH.E., A.M.I.E.E., *member,* becomes *Chairman* of North Western Gas Board (and *member* of the Gas Council).
„ 33.—KIRTON (Boston): Delete M. Illingworth, *M.,* retired.
„ 60.—EARBY: Delete H. W. Kaye, *E & M.* (retired).
„ 60.—HASLINGDEN: Delete J. T. Broughton, *E, M, & S* (retired).
„ 67/69.—SUNDERLAND (Division and Unit): Delete C. C. Walmsley, *Div. Gen. Manager,* deceased.
„ 73.—SOUTH EASTERN GAS BOARD: *Chief Medical Officer*: R. W. Fisher, M.B., B.CH., D.P.H., D.I.H.
„ 74 & 76.—KENT COUNTY DIVISION: Delete W. A. Barnett, *Div. Distributing Engineer* (retired).
„ 95.—BOURNEMOUTH: J. C. Hogg, *GM,* vice J. T. Haynes.
„ 109.—WEST MIDLANDS GAS BOARD: *Sales and Service Manager*: J. T. Rees.
„ 123.—BUCKIE: Delete G. R. Rushton, *E & M,* deceased.
„ 174.—CORNISH GAS ASSOCIATION: *President*: W. Dougall (Newquay); *Vice-President*: R. J. Williams (Truro); *Hon. Auditor*: A. W. B. Stanbury (Truro); *Hon. Secretary and Treasurer*: R. L. D. Medlin (Falmouth).
„ 174.—IRISH GAS ASSOCIATION: *President*: N. J. Robertson (Dublin); *Senior Vice-President*: G. Walmsley (Londonderry); *Junior Vice-President*: H. W. Saville (Wexford).
„ 176.—WALES AND MONMOUTHSHIRE JUNIOR GAS ASSOCIATION: *President*: C. L. Singleton (Chepstow and Caldicot) vice K. E. Muir (Bridgend).

100 YEARS AGO

Danger: Men at Work

That the prospect of gas service was not always welcomed wholeheartedly is revealed in letters reproduced in the September, 1850, issue of the JOURNAL. One ruffled gentleman stated that when workmen pulled up the pavement in Budge Row to lay gas pipes, 'there remained but a foot in width to walk upon.' Moreover as his water supply had been accidentally

Line drawing by G. W. Battison

cut off he sought priority for its reconnection on the grounds that he was an importer of leeches. An inhabitant of Watling Street requested 'that the street be filled in or we shall have an upset as there was by Mr. Smith this evening, which knocked our fronts in. 'I fear to leave town,' he concluded, 'and who shall pay for the damage?' A third referred to 'workmen careless with their shovels and unmoved by diver's holes and pitfalls.'

Institute of Fuel

1950-51 Programme

THE Melchett Lecture is to be given in London on October 18 by Professor R. J. Sarjant. The subject is not announced. The main subject before the Institute this session appears to be that of drying. In London Professor A. W. Scott and R. Hendry will open with a paper on the fundamentals of drying. There will be other, subsidiary, papers and various aspects, such as drying in the textile and paper industries, agriculture, fuel and sand, in the clay industry and in the drying of animal by-products, will be treated at four provincial sec- while R. R. Clegg will deal with current drying practice in London.

Next in prominence in the Session's programmes comes boilers. A paper on the performance and efficiency of an 800 lb./sq. in. pulverised coal-fired boiler plant over a period of 20 years, to be given by Dr. J. A. Cooper and L. W. Young to the London and East Midland Sections, promises to be one of some importance. Chain grate stokers in shell boilers by C. H. G. Hayward is to be presented to the London, North Western, and South Wales Sections. Then there are papers on research into steam and heat utilisation in industry (Dr. E. G. Ritchie, London and N.W.), steam raising, utilisation, and costing (R. H. Thompson, N.W.), external fouling and corrosion in power station boilers (Dr. H. E. Crossley, S. Wales), forced circulation boilers (W. C. Carter, Scotland) and, in some relation to these, trends in power station design (E. Forth and J. B. Jackson, Yorks.) and comparative tests on commercial CO_2 recorders (L. J. Flaws and W. Hill, Scotland).

Coal is the subject of papers on transport and storage of coal (L. Socket, London), developments of coals from Empire sources and their utilisation (Dr. W. Francis, London), developments in the utilisation of low grade fuels at collieries (F. B. Karthauser, N.W.), some aspects of preparation of coal for the market (Dr. W. R. Chapman, E. Midlands), a symposium on preparation, marketing, and use in Scotland, and anthracite for filtration (E. L. Streatfield, S. Wales) and the fuel aspects of carbon black manufacture by C. A. Stokes (Mid.).

The gas industry is represented by papers on the production of town gas from weakly-caking coals (Dr. J. G. King, London), 'Town Gas serves Trafford Park' (N. H. Greenway of Stretford, N.W., a joint meeting with the Smoke Abatement Society), underground gasification (either C. A. Masterman or Dr. E. T. Wilkins, E. Mid.), Review of methods of measuring burning velocity (Professor F. H. Garner and Dr. R. Long, Mid.), integration of gas supplies in S. Wales by a nominee of the Wales Gas Board, and gas and coke production, present position and trends (F. S. Townend, Yorks.).

Coke is to be dealt with in the 'Production of Domestic and Industrial Coke' (T. Nicklin, N.W.), the 'Down-Jet Coke Burner' (Karthauser, Ross and Sharpe, S. Wales and Yorks.) and closely allied, a paper on the past, present, and future of low temperature carbonisation (G. S. Pound, Yorks.).

The gas turbine is to be dealt with by G. L. Duffet in Scotland, the coal-fired open-cycle gas turbine (W. W. Battcock, N.W.), the solid fuel turbine (F. B. Karthauser, E. Mid.), and problems of fuel combustion in the gas turbine (A. B. S. Laidlaw, Mid.). The heat pump is the subject of a paper by S. B. Jackson in the S. Wales Section.

Other papers touching on the gas industry are industrial waste water by Dr. B. A. Southgate (E. Mid.), domestic heating (J. S. Hales, N.E. and Scot.), tunnel kilns for firing refractories (R. le Gripp, Mid.), and atmospheric pollution to a joint meeting with the Smoke Abatement Society by S. N. Duguid (E. Mid.).

Miscellaneous papers are a repeat of the paper on 'Fuel, Heat and Power Aspects of the Petroleum Plant at Partington' (Bronwitt and Charlton, N.W.), the 'Influence of Fuel Characteristics on the Behaviour of Compression Ignition Engines' (C. D. Brewer and B. H. Thorp, N.W., in a joint meeting with the Inst. of Petroleum), the 'Recovery of Ethylene and Propylene from Oil Gases' (Dr. N. Ruhemann, E. Mid.), and 'Atomic Energy' (J. Diamond, N.E.), while Sir Claude Gibb is to lecture the Yorkshire Section on what should be the most important subject of all-Britain's fuel policy.

Short Course for Teachers

The third short course for lecturers in technical colleges to be held since the end of the war was this year located in London and was again under the direction of Dr. P. C. L. Thorne, H.M. Inspector, Ministry of Education.

It was attended by 65 teachers selected from over 100 applicants, some preference being given to those who had not previously attended one of these courses. By courtesy of the Principal and Council, hostel accommodation was available in College Hall, Malet Street, one of the University hostels. On three days lectures and discussions were held at Westminster Technical College, an institution which has been for many years associated with the gas industry and with these courses. On the other two days the hospitality of the Institution of Gas Engineers in its new headquarters was much appreciated and many of the teachers saw these premises for the first time. It was indeed appropriate that the course should both begin and end in the Institution's new house as that body has always been closely concerned with education for the industry at all levels. Mr. F. M. Birks, C.B.E., President of the Institution, gave an inaugural address, and words of encouragement were enthusiastically received. Members of the Gas Education Committee attended some of the discussions.

The main plan of the course followed the lines of the two previous courses at Newcastle and Sheffield, and it was an excellent example of effective co-operation between the Ministry of Education and H.M. Inspectors, the Institution of Gas Engineers, the City and Guilds of London Institute, and the area boards. Of the latter, the two covering the London area provided lecturers and other facilities while those in other parts of Great Britain (and all were represented) arranged for teachers in their employ to attend the course.

The South Eastern Gas Board is installing a modern tar distillation plant at its Ordnance Wharf by-product works. This installation is capable of dealing with 200 tons of crude tar per 24 hours and will produce seven oil fractions simultaneously and continuously, and at the same time two qualities of pitch. The contract has been placed with the Chemical Engineering and Wilton's Patent Furnace Co., Ltd., of Horsham, Sussex.

Improved Coal Output

Coal output for the week ended September 23 rose to 4,296,900 tons, the best total since the week ended July 1, when 4,311,300 tons were mined. Provisional figures issued by the Ministry of Fuel give deep-mined production last week as 4,053,300 tons (compared with 3,965,300 in the previous week) and opencast production 243,600 tons (234,100).

The deep-mined tonnage lost due to disputes fell to 7,700 tons in contrast with 22,200 in the previous week, while recognised holidays reduced output by 20,200 tons compared with 45,500. Output for the year to date now totals 156,326,000 tons against 154,505,600 for the corresponding period of last year.

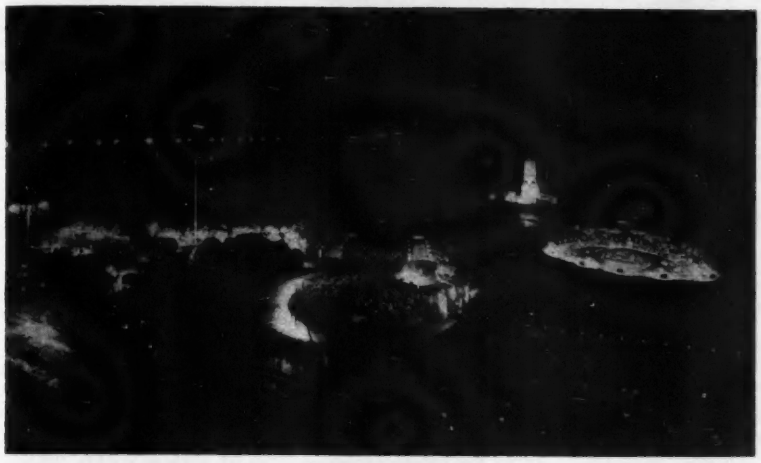
Still fewer are working at the collieries and the latest figures disclose a further decline of 700 in seven days to 691,900 for the week ended September 16 last. This contrasts with 708,900 workers at the end of last year and 726,300 at the beginning.

Gas available at gasworks for the week ended September 17 was 9,213.8 mill. cu.ft., against 9,123 mill. cu.ft. for the preceding week and 8,639.8 mill. cu.ft. for the corresponding week of 1949. Total for the first 37 weeks of the year was 371,727.2 mill. cu.ft., against 359,585.2 mill. cu.ft. for the first 37 weeks of 1949.

Gas for Baking

In 'Gas in the Baking Industries' (Industrial Uses of Gas Series, No. 15; price 2s.), the Gas Council shows how gas-fired appliances aid the baker and confectioner in his work. The booklet is illustrated with 71 pictures and diagrams of typical gas-fired ovens and other gas appliances—boilers, water heaters, baking plates, friers, etc. It deals both with new equipment and with conversions from existing solid fuel ovens. The booklet first discusses appliances particularly suitable for bread and flour confectionery, then small confectionery and pie ovens, and biscuit baking, and concludes with a description of equipment for steam raising, water heating, and other auxiliary processes necessary in the up-to-date bakery. Details of output and gas consumption figures are provided, so that the booklet will be found valuable by all engaged in the bakery and confectionery trades, and by those responsible for the installation of equipment.

Whitley Bay Illuminations



The gas floodlighting of the Empress Gardens, flower beds, and cenlotaph at Whitley Bay, carried out by the Newcastle Division of the Northern Gas Board in connection with the 'Illuminations' at this holiday resort, were greatly admired. The 'Illuminations' extending over the month of September for the attraction of visitors, are of rather unique conception, having been arranged under the auspices of private enterprise without any charge on the rates by an association of local traders and hotel and boarding housekeepers, and not, as usual, by the local authority. The whole of the sea-front promenade at Whitley Bay is gas lighted by 40 pairs of specially designed lanterns each fitted with 9-light No. 2 mantles.

Leeds Building Week

At the Ministry of Works Building Exhibition at Leeds, claimed by the Ministry to be the largest of its kind in this country, the gas industry was represented by the North Eastern Gas Board, which exhibited in the building material producers' section.

The idea behind the gas stand was to demonstrate the close link between gas and building, and prominence was, therefore, given to new developments such as balanced flue space and water heaters, the use of pre-cast concrete flue blocks, and whole house heating by ducted air. But there was also a representative range of standard domestic appliances and emphasis was laid on the efficiency and convenience of gas and coke as complementary fuels for all the year round water heating and space heating. The operative sections of a modern kitchen and bathroom were shown, complete with appropriate live appliances. Alternative installations were explained and illustrated by means of photographic and diagrammatic panels. Though the appeal of the exhibits was primarily to builders and architects, the stand attracted the general public and during the busier hours there was a continuous procession of viewers on the stand.

Over £1,200 worth of orders were taken by the Leeds Group alone, and in addition 50 specific enquiries were recorded, 18 being from visitors to the exhibition who had come from various parts of the country outside the North Eastern area.

The stand was planned at the board's headquarters, acknowledgments being due to the Gas Council and the North Western Gas Board for the loan of several display units. Installation work and plumbing was carried out by the Leeds Group, staffing being undertaken by a representative of each of the six groups.

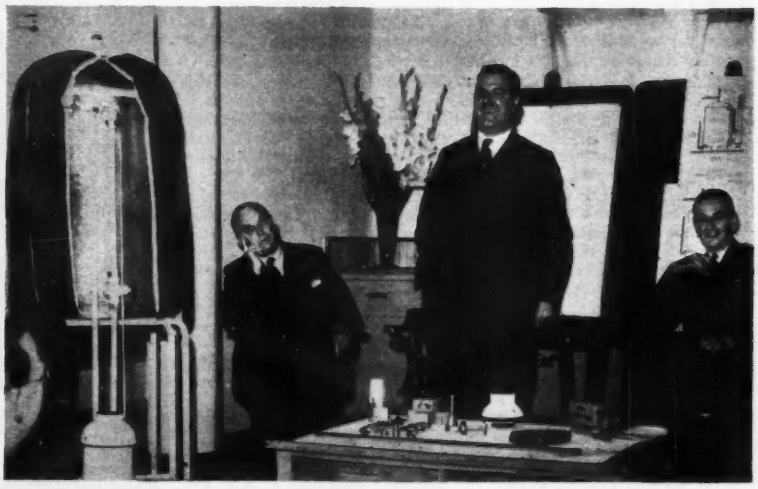
Cricket Shield.—Two years ago a trophy was provided in Coventry for a cricket competition between firms employing sheet metal workers. The winning team in this year's final was that of employees of George Wilson Gas Meters, Ltd. In reaching the final they beat Coventry Radiator and Presswork Co., Ltd., Singer Motors, Ltd., Coventry Motor Fittings Co., Ltd., and A. P. Metalcraft, Ltd.

St. Neots Carnival

The St. Neots District of the Eastern Gas Board (Cambridge Division) had a stand at the Trade and Industries Fair in connection with the recent local Carnival week. The display had a frontage of about 30 ft., where appliances were shown to advantage, and could be inspected with comfort and convenience. Cooking, space heating, home laundering, refrigeration, and hot water equipment were featured, with each article clearly priced and the hire-purchase terms stated. Examples of gas cookery, prepared by Joyce Prole, Home Service Adviser to the Bedford District, were admired, and the recipes used were available in leaflet form.

The enterprise was the most ambitious yet attempted at St. Neots, and the Manager, Mr. W. Bolton, together with all who assisted him, deserve congratulation on an excellent achievement. Valuable assistance was given in the planning stages and during the actual construction by the Cambridge Divisional Display Centre.

Gas v. Electricity.—Mr. W. N. Baird, Perth, Group Manager of the Scottish Gas Board, addressed the Kirkcaldy Housing Committee on September 18 in connection with their decision to make their housing scheme all-electric. The decision, he said, perturbed members of the board in view of the consequences which might occur. Points put forward by Mr. Baird in favour of gas installation included a contribution of about £80,000 to the town by the local undertaking. Dean of Guild A. R. Dall, Chairman, said these would be taken into consideration in future schemes.



Mr. Harry Butters, Member of the North Western Gas Board, welcomed the representatives of eight local authorities to a lecture on the hot water circulator of Radiation, Ltd., given at the demonstration theatre of the Northwich undertaking by Mr. T. Coe, of Radiation, Ltd. The picture shows Councillor H. Bradley on Mr. Butters' right and Mr. J. H. Richmond, General Manager of the Mid-Cheshire Group of undertakings (North Western Gas Board) on Mr. Butters' left. Councillor Bradley praised the co-operation of board in helping his council to equip 1,180 houses with heating installations since the war. In house-building achievement, said Councillor Bradley, Northwich stood second among all rural councils in the country. The assistance of the gas board had contributed handsomely to this success.

NORTH BRITISH ASSOCIATION OF GAS MANAGERS

THE 89th Annual General Meeting of the North British Association of Gas Managers was held at Oban on September 21, the President, Mr. **Robert Sturrock** (Ardrossan), in the chair. There was a large attendance.

The **President,** expressing gratification at the numbers present, said that they were meeting in the capital of the West Highlands to discuss improved efficiency and gas service as applied to Scotland in general. The change-over from private to public ownership had been effected without upheaval in a most commendable way by adapting the existing structure of the industry to State ownership with an easy working balance between autonomy and control. The long-term policy of nationalisation would soon reflect itself in higher efficiency, the benefits of which would be passed on to the gas consumer. With the new schemes and plans the Scottish Gas Board now had in hand it would, he was confident, ensure the whole country better gas supplies.

Provost **W. J. Calderwood** (Oban) extended an official welcome to those present on behalf of the citizens of the town.

The **President** referred to the losses sustained by the Association through death. Since last they met Mr. George Rushton, an Ordinary Member since 1940, and Mr. James Henderson, an Ordinary Member since 1947, had died, as also had Mr. James Brock, an extra-ordinary member since 1932 and a former Captain of the Golf Circle.

The **Secretary** (Mr. Athol W. Brown, Alloa) intimated apologies from various members and from office-bearers of kindred societies.

Sir **Andrew Clow** (Chairman of the Scottish Gas Board), who was congratulated by the President on his recovery from a recent illness, said he attached great value to their meetings.

Mr. **J. H. Dyde** (Vice-President of the Institution of Gas Engineers), deputising for the President, said that owing to a meeting of the North Thames Gas Board the Institution President was unable to be with them, but he had sent his greetings and best wishes for the success of the meeting.

Following the adoption of the Report and Accounts, the **Secretary** read the following Motion, notice of which had already been given to all members: 'That the North British Association of Gas Managers and the Waverley Association of Gas Managers be amalgamated and a new Association formed, its title to be the Scottish Association of Gas Managers. Members of the Waverley Association to be admitted to the appropriate class of membership to the new Association shall be those members included in the register of members of that Association as at April 30, 1949.'

The **President** said that if the motion were adopted the amalgamation would take place after a special general meeting of the Waverley Association had been held in the near future.

Mr. **David Fulton** (Helensburgh, Scottish Gas Board) said the amalgamation could be taken for granted. It was very much a case of the North British Association amalgamating with the North British Association! He hoped, however, that the members assembled there that day would not take it for granted that it was necessary to change the title.

Mr. **Robert Cowie, Jnr.** (Hawick), questioned whether Mr. Fulton's proposal was in order in view of the fact that the Waverley Association, whose representatives had, in conjunction with those of the North British Association, prepared the motion, had not been consulted. It was something new as far as the Waverley Association was concerned.

After further discussion the motion as read by the Secretary was carried by a large majority.

It was agreed to admit the following to membership:—

Ordinary Members: Donald C. Brown (Maybole), David Wilson (Skelmorlie), Godfrey C. Wood (Grangemouth), and Donald F. Young (Glasgow).

Extra-Ordinary Members: Ernest A. Beevers, Director and General Manager, Peebles and Co., Edinburgh; George E. Jeffs, Northern Manager, Ascot Gas Water Heaters, Ltd.; Ronald D. Keillor, Technical Engineer, Radiant Heating, Ltd.; Alex. Leckie, Senior Technical Engineer, Feedwater Specialties Co., Liverpool; James Taylor, Scottish Manager, Electrolux, Ltd., Glasgow; Ernest West, Managing Director, West's Gas Improvement Co., Ltd., Manchester; and T. L. Robson, of James Howden and Co., Ltd., Glasgow.

The **President** thereafter presented Mr. J. P. Scott, Edinburgh, with the J. W. McLusky Award for the best Paper submitted in recent years to the Association. He also presented Mr. James T. Murray, Perth, with the Association Award to the Scottish student achieving the greatest distinction during the year in the Institution examinations.

Certificates were handed over by the President to the successful students taking part in the Institution examinations.

Referring to the recent pit disaster in Ayrshire the **President** intimated that the Council had decided, in view of the fact that they were an allied industry and that many of their undertakings were supplied with coal from the New Cumnock area, that a collection should be taken at the meeting for the Disaster Fund.

Group Working

Mr. **Norman C. Sturrock** then gave his paper on 'Group Working.' This was published in last week's *Journal*. A report of the discussion will be found on a later page today.

After the discussion the **President** welcomed Dr. W. T. K. Braunholtz, Secretary of the Institution, and Messrs. J. S. Smith and A. E. Musto, of the Ministry of Fuel and Power.

Following the forenoon session, the **President** entertained a number of guests to luncheon in the Great Western Hotel.

Acknowledging the President's hospitality, Mr. **D. D. Melvin** (Scottish Gas Board, who was accompanied by Sir Andrew Clow, Chairman, Mr. D. D. Burns, Deputy Chairman, and Messrs. Fulton and Murdoch, members of the Board) said that he was one of the President's oldest friends. They had started out in the industry together some 30 years ago. Mr. Sturrock had reached the chair of the Association the hard way, having guided eight of his predecessors when he was Secretary.

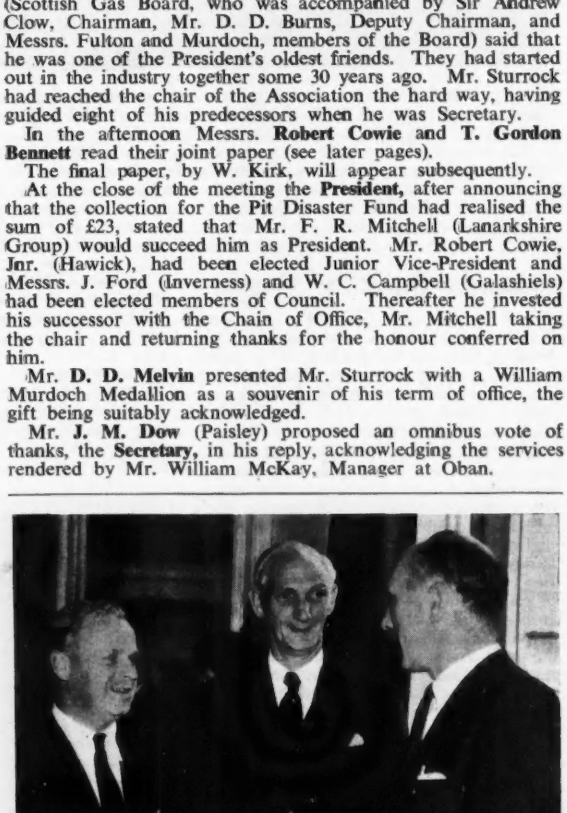
In the afternoon Messrs. **Robert Cowie** and **T. Gordon Bennett** read their joint paper (see later pages).

The final paper, by W. Kirk, will appear subsequently.

At the close of the meeting the **President,** after announcing that the collection for the Pit Disaster Fund had realised the sum of £23, stated that Mr. F. R. Mitchell (Lanarkshire Group) would succeed him as President. Mr. Robert Cowie, Jnr. (Hawick), had been elected Junior Vice-President and Messrs. J. Ford (Inverness) and W. C. Campbell (Galashiels) had been elected members of Council. Thereafter he invested his successor with the Chain of Office, Mr. Mitchell taking the chair and returning thanks for the honour conferred on him.

Mr. **D. D. Melvin** presented Mr. Sturrock with a William Murdoch Medallion as a souvenir of his term of office, the gift being suitably acknowledged.

Mr. **J. M. Dow** (Paisley) proposed an omnibus vote of thanks, the **Secretary,** in his reply, acknowledging the services rendered by Mr. William McKay, Manager at Oban.



Mr. John Powdrill, newly-installed Chairman of the Wales and Monmouthshire Section of the Institution of Gas Engineers, presented a silver salver to the retiring Chairman, Alderman Darrell W. Rees, M.B.E., *in appreciation of his services, at the annual meeting at Newport on September 20.*

Domestic Sales Service*

By D. C. HENDERSON,
Assistant Commercial Officer, North Eastern Gas Board.

THE gas industry has long concentrated its brain and energy on plant operation, and while 'therms per ton' may be an index to plant efficiency, it is not a reliable guide to the service we render to the community. Before World War I gas was an essential requisite in practically every home. Today it has become the 'desirable service.' What we gain or hold today in the domestic market is achieved as a result of personnel efficiency in the field of selling. The public now buy our commodities, gas and coke, not of necessity or sympathy, but on merit or habit resulting from years of usage. Merit includes constancy of quality and composition, adequacy of pressure and supply, good performance, and service at a fair and economic price. Given all these qualities, the task of the sales staff would be easy and fruitful, and load development would be automatic.

Manufacture and distribution problems are outside the scope of this contribution but their influence on consumer relations is most acute and reflects on the sales effort. What a dry, gum free, low sulphur content gas, and a good quality correctly graded coke would do for the industry is beyond estimation. Price is not the most important factor in the average user's mind, and an additional copper or two per therm might be willingly paid for the improved product. Calor gas at 3s. 3d. per therm finds a market against coal and electricity, and town gas and coke have advantages over all three fuels.

Appliance Sales and Potential

One of the outstanding developments in the area during the first 11 months following the vesting date was the introduction on October 1, 1949, of a uniform scale for cash and hire purchase appliance terms, together with fixed installation charges. Nothing was more urgently required and nothing was more adequately met. Prior to vesting the undertakings now constituted in the Board sold apparatus with a 'margin on cost' ranging from 5% to 37½%, while hire purchase terms were *not* offered by 27 undertakings. Of those who did offer terms the period ranged from one year to 10 years. Installation charges for cookers ranged over 28 differing rates. The new policy stabilised the 'margin on cost' at 25% and hire purchase terms at three or five years, while each particular type of appliance had an appropriate scale of charge for installation irrespective of pipe length.

The benefits of the new policy can best be realised by study of the following table, which gives the net increase in appliances installed for the three months prior to October 1 and the three months' period immediately following introduction of the revised terms. The figures do not include the smaller appliances.

Appliances Installed—Net Increase

Appliance	July-Aug.-Sept., 1949	Oct.-Nov.-Dec., 1949
Cookers	6,401	8,014
Fires, including portable	834	1,932
Radiators	137	508
Coke grates	69	254
Refrigerators	232	215
Water heaters	790	945
Wash boilers and machines	3,506	4,176
	11,969	16,044

Increase over the two periods, 34%.

Perhaps a fairer method of presentation would be to take figures for a like period in 1949 and again in 1950.

Appliances Installed—Net Increase

Appliance	May-June-July, 1949	May-June-July, 1950
Cookers	6,642	8,596
Fires, including portable	782	985
Radiators	122	128
Coke grates	82	147
Refrigerators	218	230
Water heaters	955	1,206
Wash boilers and machines	3,869	4,346
	12,670	15,630

Increase over the two periods, 23%.

In 1949 simple hire was still operating although on a restricted scale, while in 1950 this was confined to maintenance of existing contracts. Note also that the figures quoted refer only to the net increase, *e.g.*, no account is taken here of appliances changed. The necessity and importance of replacing old equipment with modern is often overlooked in the desire to obtain new business, but we must concentrate a greater proportion of our sales effort on this business if we wish to consolidate the existing market. To gain one new and lose two existing users would avail us nothing. The black cooker is a liability and serves as encouragement to the electrical interests to step in and take over the load. Its replacement by a modern enamelled gas cooker is tantamount to insuring the business for the next 10 to 15 years. Within the area of the board there are approximately 777,000 domestic users, and a fair assumption would put the probable number of appliances at, say, 1 mill. Let us further assume the life of every appliance to be 20 years and we should have an annual replacement figure of 50,000. For the 11 months ended March, 1950, the total number of appliances actually connected by the board was 68,078 (exclusive of hotplates, boiling burners, irons, pokers, and other sundries). It will be realised, therefore, that despite the encouraging figures quoted earlier, there is no room for complacency, and we must redouble our efforts in order to ensure retention of business by modernising old equipment. The board has made arrangements with one or two manufacturers for the purchase of certain cookers on contract terms, and it is hoped, by the standardisation of type and specification (now under consideration), to improve the supply position and, in time, reduce the cost of the appliance and the attendant stock of spare parts. A few modern cookers, while excellent in appearance, leave much to be desired in the design, layout, and finish of hotplate and oven furnishings. Castings and fabricated parts are coarse and roughly finished and it is not uncommon for consumers to tear their hands when dismantling and re-assembling for cleaning. This may appear to be a minor matter but quality and performance are more important to the user than mere appearance; and as we are concerned to promote additional sales business we must impress on manufacturers that their interests, and the interests of the board, will be best served by attention to these details.

Gas Sales Potential

The need to improve the load factor with existing consumers is paramount to our economy. The average usage per domestic consumer is approximately 100 therms per annum, which is below the average for the whole country. Generally accepted figures within the industry rate the value of the various loads at:—

	Therms per annum
Cooking	80
Refrigerator	50
Sink water heater	50-75
Gas circulator	120-150
Solid fuel fire ignition	10-12
Wash boiler or washing machine	10
Occasional space heating (bedrooms)	5-10
Living room coke fire with back boiler .. (cwt.per annum)	45-50

It would appear that refrigeration and water heating are the most lucrative markets to exploit; and as there must be tens of thousands of homes within the area without piped hot water supply, the prospects are bright for sink heaters. Field tests will shortly be instituted in the area with a new type gas conversion unit for occasional water heating when a back boiler is used. The unit, being portable, requires no plumbing or additional flue equipment, and is merely placed on the existing firegrate and heats the back boiler by radiation. The selling price will probably be in the region of £3 to £4 and, if successful, will prove a boon to every householder, particularly during the summer months. The gas poker and washing machine are two appliances with perhaps a modest, yet important load value, and a very high prestige value. There are some who consider the gas washing machine should have mechanical agitation and wringer operation, but this would put the price range beyond the reach of the average person and we must emphasise that our product combines boiler, washer, wringer, and table top in one unit and sells at something under £20. Again, some say that the time is not opportune to push domestic space heating, but with this view I cannot agree. Any business we can obtain this season would cause no real embarrassment; as time is not on our side in matters of this kind. If we had the correct grade and quality of coke in every district, I would recommend that we should go all out for living room space heating. As it is we intend to develop this market wherever circumstances warrant, but we should do

* Paper to the North Eastern Gas Board Conference of Senior Officials, Scarborough, September, 1950.

great harm to the business and the cause of smoke abatement if we sell the grate with gas ignition and fail to supply the correct grade and quality of fuel. The high cost of gas fires is a definite obstacle and manufacturers are endeavouring to meet the position by production of sheet steel surrounds in place of the usual cast shell. In the space heating market there is a very real opportunity to replace the winter lighting load which sustained the industry so ably in earlier days.

Gas Showrooms

There are within the area approximately 92 showrooms or offices used as selling centres and quite a number of these may be considered as unworthy of the board and will require to be replaced or modernised. This matter is receiving attention and a list of requirements is under consideration. This will be a lengthy and costly business. Every district is required to weigh up and assess the potentialities most carefully, and while we have a duty to provide proper facilities we must be mindful of the economics of the subject. The most modest of premises will cost £500-£600 per annum for rent, rates, staffing, lighting, &c.; and unless we get a fair return by way of appliance sales it may be difficult to justify the outlay. To provide an accounts reception centre, &c., where none existed previously, may be a laudable objective, but the cost will be borne by the consumer at large, and we should invite local criticism if we once opened one and later wished to withdraw the facility on the score of cost. Let us, therefore, choose our site carefully, having due regard to existing facilities, population, shopping centres, traffic stops, and so on.

Leaving aside the question of new showrooms, however, there is much to do in renovating existing premises. It will be necessary to consider re-decorating on a regular schedule. Wherever possible, furnishings—cash desk, enquiry counter, &c.—should be portable units so that a change of position can be tried out from time to time. In large industrial districts the accepted practice of placing accounts reception desk at the rear of the premises is not always the best arrangement, as the passage to and fro of a large number of persons disturbs the actual sales activities.

Electric lighting is being installed in premises prior to re-decoration, and some of the fluorescent installations leave much to be desired. The installation of an attractive tungsten fitting has much to recommend it, particularly where ceilings are of average height. Being less conspicuous, it does not invite comment from the public nor detract from the natural appearance of our appliances. One could say a lot more about showrooms and service centres, but above all, cleanliness and tidiness remain the predominating virtues, and this is largely a domestic affair. The need for attention to these matters is particularly necessary where open display windows are the vogue, and lighting after hours is practised. Clock control to window lighting is essential as consumers will cross the street to view a well lit window. Many sales have resulted from an overnight preview of appliances attractively displayed under good lighting conditions.

The incidence of the five-day working week has made a considerable change in shopping habits. Saturday mornings, in the average large showroom, is the peak period of the week and, in some cases, more business is transacted in four hours than is done during the rest of the week. The difficulty is further accentuated where accounts reception centres have been recently opened. It may be necessary to consider experimenting, by remaining open an hour or two longer on Friday evenings and observing results. Consumers would appreciate this gesture to meet their needs, and appreciation would bring additional sales results.

British Road Tar Association

More than 130 road engineers and road contractors attended a meeting organised by the Northern Ireland members of the British Road Tar Association at the Corporation Gasworks, Belfast, on September 7, when Mr. W. E. Cone, Technical Adviser, gave an address on the technical activities of the Association, and Mr. J. W. Milton, Travelling Representative, gave a talk on tarmacadam, illustrated with lantern slides. Mr. J. S. Hyslop, Engineer and Manager, Belfast, extended a welcome to the visitors and introduced the speakers.

Mr. Cone said it was a particular pleasure to him to visit Belfast after a lapse of many years, and he recalled his former visit when he had the privilege of addressing a similar gathering of road engineers and road contractors. Much had been accomplished in that period, particularly in the advances made in the technique of tar road construction and maintenance, and he paid tribute to the Department of Scientific and Industrial Research for the progress that had been made in the researches undertaken jointly with the Association at the Road Research Laboratory. Mr. Cone dealt with the full-scale experimental road work which formed part of the research programme, and the important part it played in the correlation of laboratory investigation work with road performance. He concluded his remarks with a brief historical review of the British Standard specifications for tarmacadam.

Mr. Milton, in his talk on tarmacadam, dealt with the essential factors to be taken care of in the manufacture of the material if the best results were to be obtained. With the aid of lantern slides he traced the development of tarmacadam and the forms in which it was used for road surfacing. This was followed by slides showing the component parts of tarmacadam mixtures to British Standard specification, the various stages of manufacture, and the laying of the material by hand and by machine. Mr. Milton stressed the need for technical control over the manufacturing operations, and dealt with a number of other points of practical interest. The talk was followed with close attention, and an interesting discussion ensued.

At the conclusion refreshments were provided.

Rotherham Extensions

The East Midlands Gas Board is to spend about £2 mill. on the erection of a complete new gas making plant at Car House Works, Rotherham. This plant will provide an additional 8 to 10 mill. cu.ft. of gas per day to meet the ever-increasing demand by industrial and domestic gas users in the Sheffield and Rotherham Division.

The carbonising plant is of the intermittent vertical chamber type and will be built in four units, with provision for extensions up to 50% of the original 8/10 mill. cu.ft. capacity. Each unit will consist of 21 chambers, and approximately 600 tons of coal will be carbonised each day.

Ancillary plant will include handling facilities for receiving coal at the railway sidings and delivering to the chamber house, coke screening and grading plant arranged for loading both to rail and road vehicles, benzole recovery plant for the extraction of crude benzole during gas manufacture, as well as wet and dry purification plant. The new dry purification plant will be the first of its type to be erected.

Waste heat steam will be available from the carbonising plant and will drive turbo alternators to generate electric power. Under certain load conditions some surplus power may be available for use elsewhere.

The main contractors for the carbonising installation are the Woodhall-Duckham Vertical Retort and Oven Construction Co. (1920), Ltd., and for the dry purification plant, Henry Balfour & Co., Ltd.

British Industry in the U.S.A.

With the opening on September 7 in New York of the British Trade Promotion Centre, a new step was taken in the representation of British industry in the U.S.A. The centre is organised and managed by the British Commonwealth Chamber of Commerce in the United States. Organisations in the U.K. which have already decided to participate in the centre are the Dollar Exports Board, Federation of British Industries, National Union of Manufacturers, Scottish Council (Development and Industry), and B.E.T.R.O.

The centre's main functions will be to provide information, advice, and help to British industrial organisations and individual firms on exporting British goods, and to represent the views of British industry to American authorities and business men. An important feature of the services available at the centre is the provision of a number of offices available for letting on a day-to-day basis to visiting British business men. The centre, which has been set up entirely on the initiative of private enterprise and is supported by contributions from private enterprise organisations and firms, is proof, in the words of Sir Robert Sinclair, President of the F.B.I., 'of British industry's determination to do everything in its power to close the dollar gap through the well-tried methods of private enterprise.'

On the Service Side

Current Thought Among Salesmen's Circles

HOME Service has its publicity at Circle meetings, and in view of this at Circle meetings, and in view of this it is perhaps surprising that greater use is not made of home service advisers in the industry. Their advantages were confidently described to the West Riding Circle by Miss S. M. McCreadie, Home Service Adviser to the Bradford group, in a paper entitled, 'The Growth of Home Service in the Gas Industry.' More than any other employees, home service advisers seem to root out those strange examples of consumers' ignorance which prevents a true appreciation of gas service. Thus Miss McCreadie told of a housewife who insisted that she was perfectly satisfied with her cooker but who, on further questioning, said it had one drawback. She had found it very annoying that when she wished to simmer her stew on one ring the light under the kettle also went down. On investigation it was found that she had not realised that the individual taps could be turned down, and she had been adjusting the flame from the main tap at the back of the cooker.

The kernel of Miss McCreadie's paper lay in her plea for greater understanding of the home service adviser's job by her sales colleagues. 'I suggest,' she said, 'that other members of the staff should have a knowledge of the work of a home service adviser so that they can understand the training that they have had and learn to collaborate more fully with them. The home service adviser can find herself in a difficult position through a lack of knowledge on the part of a gas fitter for example. On occasion, I have visited housewives and suggested that various thermostat settings should be used only to hear that "the man who put it in told her always to heat it up at No. 12." The poor woman doesn't know who to believe and it can lead to her distrusting members of the department unless the situation is very carefully handled.'

Cookery for Salesmen

Mention of Home Service brings a reminder of an unusual occurrence at a recent meeting of the Midlands District Circle. This was a cookery demonstration for salesmen by Miss O. L. Humphries, Home Service Organiser to the West Midlands Gas Board. The address was entitled 'Home Service would like the Salesman to know. . . .' and Miss Humphries stated that the object of the demonstration was to give the salesmen present a practical knowledge of the correct positioning of food in the oven when cooking a complete dinner, and also to let the salesmen know the type of enquiries and complaints that were put to the home service advisers on the district and which, she knew, were often raised by consumers in the showrooms. Many complaints arose because of the incorrect use of the oven and the ability of a salesman to reply to these at first hand would be to both the consumers' and the gas undertakings' benefit.

The absorbing subject of the place of women in the gas industry has distracted the reviewer's attention from the study of showrooms, referred to previously. There are two other papers connected with the showroom which should be mentioned. The first is a paper entitled 'Some Aspects of Showroom Planning,' presented to the West Riding Circle. The author, J. C. E. Fortey is an architect and his paper constitutes one of the most careful and detailed expressions of thought on this subject yet given to the industry. It is not possible to select particular passages for reproduction here because they would thereby lose their essential relationship to the paper as a whole. However, quite lengthy extracts were published in the March and April issues of *Gas Service*.

Display Requirements

The other paper connected with showrooms is concerned specifically with window displays. Under the title 'Modern Display,' W. J. Barbour, of Stroud, in a paper to the Western District Circle, examined the function of a display artist with some care. 'The display man of today,' he stated, 'must combine with natural artistic sense, the organising capacity of the efficient sales executive, and his work must be closely woven with the function of sales promotion and advertising.' How important is the showroom window?

'It has been said,' commented Mr. Barbour, 'that the showroom window is the face which the industry shows to the public, and as one's face may be one's fortune, it is our bounden duty to ensure that it radiates cheerfulness, progressiveness and service.' The author then settled down to a working analysis of how this can be achieved. He dealt with spacing, balance, line, and design —in fact, with all the qualities which go to make up effective window display.

From the artistic to the materialistic, and coke sales. 'Coke Sales Promotion,' a paper by S. Moss, Group Coke Sales Representative to the Stretford undertaking, presented to the North Western Circle, dealt very logically with the present situation and outlined the methods by which future sales may be achieved. He made particular reference to the closed or free standing stove. While expressing himself in complete agreement with the coke grate selling drive, the author said this: 'I feel that insufficient publicity and attention has been given to the closed or free standing stove. My department has been successful in selling a comparatively large number of these appliances, which are remarkably efficient, do not make such exacting demands on fuel quality and sizing as do open coke grates, and are undoubtedly more permanent business for coke sales than the open fire. In this respect, I feel that the full range of domestic coke burning appliances should have equal display with gas appliances in our showrooms, preferably during the winter months with a percentage actually operating.

Coke sales were also the subject of a recent paper to the Southern District 'B' Circle by Dr. F. J. Eaton, Chairman of the Gas Council Coke Technical Committee. The paper was given not only before Circle members but before coke merchants in the area, and dealt at some length with the three groups of coke markets—domestic, commercial or semi-domestic, and industrial. He concluded on an optimistic note. 'Today we are in a more favourable position to develop our domestic market than ever before. The houses now being erected are practically all fitted with the new improved appliances which will all burn coke satisfactorily. Further, these houses are generally in fairly large estates and this should simplify delivery problems. It has, however, been proved that the tenants on these new estates will not automatically burn coke, an active sales policy is required to educate the tenants in the burning of coke. If this is done, the success in developing the market depends largely on the consistency of coke quality.'

A subject receiving an unusual amount of attention today is distribution—and for obvious reasons. Recent Circle papers have dealt with this subject. One, to the Home Counties (Western Area) Circle was entitled 'Modern Distribution and the Salesman.' Its author, G. M. Dewhirst, is Assistant Distribution Engineer at Aylesbury, and his paper commenced with these words: 'It is becoming increasingly evident that the sales and distribution sections of a gas undertaking cannot be independent of each other. At the same time, it is also true to say that sales and distribution are specialist jobs in themselves.' Taking this as his text, Mr. Dewhirst set out to describe points of contact between sales and distribution and describe how these two branches of an undertaking must co-operate with each other in order that the consumer may be given a good supply of gas at reasonable cost.

Merits of Contractors

Reference was also made to the rival merits of contractors or direct labour for mainlaying. The reason why many undertakings employed contractors was often that they were unable to obtain the necessary skilled and unskilled labour in their own area. 'My view,' said Mr. Dewhirst, 'is that this problem is by no means as acute today as it was perhaps four or five years ago. One thing is certain. A gas undertaking can, using its own labour force, carry out mainlaying work cheaper than the contractor. This applies more than ever to the small job, since only the absolute necessities are taken to the site which is generally nearer to the gas undertaking's headquarters than to the contractor's. By developing and operating a suitable incentive bonus scheme, it is my opinion that undertakings can achieve still further economies. The grouping of gas undertakings since nationalisation has done much to confirm this opinion, since no such scheme could be considered unless sufficient work were available for the mainlayers.

RAPID DETERMINATION OF PYRITIC AND SULPHATE SULPHUR IN COAL

By R. A. MOTT, D.Sc., F.R.I.C., F.Inst.F.,
Chairman, Panel No. 1, British Coke Research Association.

THE sulphur content of coal and coke has always been of great significance in the coking industry. Recently a demand for coke of lower sulphur content has been made by the iron industry, but the greatly increased coke requirements planned within the next few years for that industry will mean the use of coal supplies not hitherto used for coke making. On the other hand, of the major coalfields producing coking coal it is only in South Wales that the mean sulphur content of the coal mined will not increase during the next 50 years. In future years, therefore, attention is likely to be focused more sharply on the sulphur contents of the coals supplied for coke making.

Sulphur in coal is chiefly in the form of pyrites and organic sulphur, though there is a small amount, often negligible in freshly-mined coal, of sulphate sulphur. The organic sulphur is usually less than 1% and a high sulphur content in coal is usually an indication that the pyritic sulphur is high. In run-of-mine coal, pyrites, in lenticular and stringy forms, may be observed, the former being easily removed by cleaning, but the latter would require crushing of the coal for the recovery of most of the useful materials. In small coals such as coking slacks, pyrites is mostly present in microscopic form of a size of 25 to 40 microns, too small to be removed by a washing process.

On carbonisation approximately 50% of the sulphur in the coal remains in the coke, so that with the loss of volatile matter, the sulphur content of coke is about 80% of that of coal. About 60% of the pyritic sulphur compared with 45% of the organic sulphur is retained on carbonisation, so that the percentage of the total sulphur of coal present as pyrites has a direct influence on the percentage of sulphur left in the coke.

In South Wales and Durham the upper seams (of lower rank and therefore of less value for coke making) are higher in sulphur, but in Yorkshire, Notts and Derby, the lower seams of higher rank are richer in sulphur and may be so high, as in the Ganister coal, to make a high-rank coal unfit for coke making.

High Sulphur Content

A high sulphur content of coal used for coke making will, in addition to giving a high sulphur content of the coke, give the crude gas and benzole high sulphur contents and make them require more extensive purification. One case is known where a premature failure of the silica wall of a coke oven was attributed to the penetration of iron from the coal into the oven walls, and this, in conjunction with very high face temperature (1,250°C.), caused early failure of the walls.

Although the determination of the forms of sulphur in coal is not as important as the determination of total sulphur, it is likely to become of greater importance in the future, if suitable methods are available for its determination. The present standard methods (B.S. 1016/1942, p. 45) have the defect that the determination of sulphate sulphur requires treatment with acid for a period of 40 hr. and the determination of pyritic sulphur treatment with a further acid for 24 hr. These periods are so long that the methods of determination have rarely been used outside the Coal Survey Laboratories. The essential feature of the new methods described in this paper is to reduce these two periods to 30 min. each, so that the new methods could become practicable in all laboratories.

The present B.S. methods for determining sulphate and pyritic sulphur in coal are based on those recommended by Powell and Parr (University of Illinois, Bull. 11, 1919), and of Powell (*J.Ind.Eng.Chem.* 1920, **12**, 887). Coal ground to pass 120 B.S. mesh is extracted for 24 to 40 hr. at 60°C. with 3% hydrochloric acid to remove sulphate sulphur (calcium sulphate and any pyrites oxidised on storage to ferrous sulphate); the residue is extracted with nitric acids of S.G. 1.12 for 24 hr. at room temperature to remove the pyrites without attacking the organic sulphur. In the B.S. method the sulphate in each extract is precipitated with barium chloride and the sulphur determined in the usual way. Because of the possibility of extracting some organic sulphur with nitric acid, Powell, however, recommended the determination of pyritic iron (correcting for non-pyritic iron by determining this in the hydrochloric acid extract) and calculating the pyritic sulphur from the stoichimetric relationship FeS_2, a formula which has been confirmed by many minerologists and chemists.

The British Coke Research Association has now confirmed the findings of Teichmann (*J.Chem.Met. and Min. Soc. of S. Africa*, 1945, Bull. 22) that in extracting sulphate sulphur at 60°C., oxidation of a small amount of pyrites by air can occur and that this is avoided by using 16% hydrochloric acid at the boiling point, and boiling for only a short period, Teichmann's period of 1 hr. being reduced to 30 min.

The suggestion of Powell that the time for extraction of pyritic sulphur can be shortened by using shaking was found to be true only for low pyrites contents and for the use of a shaker with a violent action, and could not be recommended as a general method. It was found by the British Coke Research Association that boiling for 30 min. with 2N nitric acid removed all the pyrites. The iron in the extract was determined using potassium dichromate with sodium diphenylamine sulphonate as an internal indicator, and after deducting the non-pyritic iron in the hydrochloric acid extract of the pyritic sulphur is calculated.

These methods were circulated to 11 laboratories with samples of two coals, and the following results were obtained:

	Coal 21.		Coal 22.	
	B.S. Method.	B.C.R.A. Method.	B.S. Method.	B.C.R.A. Method
Mean pyritic sulphur %	2.27	2.26	0.055	0.044
Average deviation of individual results from mean of each laboratory	0.027	0.007	0.007	0.013
Average deviation of mean for each laboratory from total mean	0.074	0.053	0.015	0.014

	Coal 15		Coal 13		Coal 14	
	B.S. Method	B.C.R.A. Method	B.S. Method	B.C.R.A. Method	B.S. Method	B.C.R.A. Method
Sulphate sulphur %...	0.045	0.038	0.26	0.26	0.47	0.43
Average deviation from mean	0.005	0.004	0.01	0.01	0.03	0.02
No. of laboratories ...	9	3	9	3	9	3

The results may be considered to show that the B.C.R.A. methods are satisfactory and give greater precision than the B.S. method.

Finally it was shown that non-pyritic iron such as iron after carbonate and pyrites of 72—120 B.S. mesh was completely extracted in boiling for 30 min. in hydrochloric and nitric acid, respectively. Confirmatory tests with coals by members of the Panel 1 of the Research Committee showed that coal ground to pass 120 B.S. mesh gave the same pyritic sulphur as coal ground to pass 120 B.S. mesh and that the ordinary analytical size of coal, through 72 B.S. mesh, could be used for the test. The B.C.R.A. methods are therefore accurate and rapid and can be used for routine analysis.

As has been made clear in the text, this work was sponsored by Panel 1 of the British Coke Research Association, and owes much to the co-operation of members of that Panel who carried out investigations in their own laboratories, and to members of the coking industry who made confirmatory tests. The author is indebted to the British Coke Research Association for permission to publish.

A revised British Standard for Twist Drills and Combined Drill and Countersink (Centre Drills) (B.S. 328: 1950) has been issued. B.S. 328 (Twist and Straight Flute Drills) was first published in 1928, and B.S. 985 (Combined Drills and Countersinks) was published in 1941. Both subjects are now combined in the revised edition. The section dealing with twist drills has been amended and extended, special attention having been given to the nomenclature and definitions of drill parts, as a need for this has long been apparent. The testing requirements have been brought up to date and the penetration capabilities of the drills modernised and extended. Copies may be obtained from the British Standards Institution, 24, Victoria Street, S.W.1, price 6s., post free.

SALES AND DEVELOPMENT*

By ROBERT COWIE, Engineer and Manager, Hawick District, and T. GORDON BENNETT, Distribution Technical Assistant, Edinburgh and South East Division, Scottish Gas Board.

PART I by Robert Cowie.

I MAKE no apology for introducing a commercial subject the deliberations of what we usually consider a technical association. Most of us are what are now styled 'district managers' and I consider it almost inevitable that major questions of technical policy will in the future incline to devolve more and more on technical specialists at divisional or board headquarters. If so, we shall be free to make a greater contribution at the point of contact with the consumer. And it is upon the consumer that the whole future of the industry depends.

What does the consumer think of us? It will be good for our souls to remind ourselves of the answer given by an eminent man at a pre-war B.C.G.A. conference. He said 'What do the public think about gas? They are not concerned with your talks or ideas. They think of gas as coming out of a jet. They expect it to give a good light or good heat. They hope it is harmless and they hate the smell of it. And they don't like paying their bills! That's all the public think about gas. It is as simple as that to them, but not to you.' To bring that statement up to date we might omit the words 'good light' and add that since we are nationalised they expect the gas to become dearer and the officials more bureaucratic.

Virtue of Necessity

With regard to these latter all too widely believed effects of nationalisation let us spare no effort to give the lie direct. Let us make a virtue of a necessity and gain goodwill and publicity from the recent change of ownership. I hold the opinion that to some extent we have lost the opportunity to make this fresh approach. The change of ownership did raise many internal difficulties and involved many of us in extra work, but no amount of internal pre-occupation should be allowed to affect what I might call the public side of our work. It may well be that there are doubts and difficulties in some of our own minds. If so, it is time we did some thinking and made ourselves realise the real and potential advantages which the new regime holds for the consumer. If we ourselves are not completely convinced that the future is bright with opportunity for better service then the sooner we do something about it the better.

The tone and atmosphere of general conditions affect our outlook considerably. I am glad to have had the opportunity of writing this paper if only to make me personally focus my attention on the subject of selling gas in this year of 1950. Many of us remember the 'thirties—the days of keen competition between ourselves and our great and worthy sister industry. Since then there have been the nightmares and the dreams of the war and the immediate post-war period. Now we are wakening to find that the world has not changed so very much—that the public purse has a bottom, that appliances have to be sold, that gas outputs do not rise annually of their own accord, and that the electrical industry means business, and a lot of it at our expense. We must be up and doing.

My own experience has, as most of you know, been limited, but I trust that some indication of the methods and devices used in Hawick during the last 12½ years will prove interesting.

I am always surprised at the number of people who regard money spent on advertising as money wasted. The primary function of a sales department must be to make the public aware—to educate them in a knowledge of the service gas can render. Before they can even begin to learn, however, they must be interested—so we must catch their attention and interest. When interest has been aroused and knowledge acquired, the service begins to be appreciated and sought after. It may be useful to mention the various methods of advertising, with comment thereon.

Local Press.—Position of advertisement is important. This depends on the layout of the particular publication. Topicality is an advantage and also local 'slant' if possible.

Posters.—Difficult to get at the moment. Good sites essential.

Films.—No longer have novelty or prestige value to suffer from being shown in acoustically unsuitable halls. Useful for existing audiences such as schools and as an adjunct to an exhibition.

Cinema 'Tie-ups'—Good. Room here for district or regional co-operation.

Exhibitions.—Even small efforts well worth while—best held in autumn (for space heating load) and early spring before 'cleaning time.'

Lectures.—Very good. Can be usefully combined with plans for existing audiences. Often provide good copy for local Press.

Puppets.—A recent novelty with possibilities for further development.

Demonstrations.—Should include cold cookery, fruit bottling and washing. Small demonstrations in the showroom at regular intervals.

Cookery Classes.—Visit to showroom by final year domestic science students. Girl Guides and other girls' organisations are glad to have facilities for classes and the home service adviser is an acceptable instructor and/or examiner.

Home Service.—It is a mistaken idea that this can only be carried out in large undertakings. Given the right type of person, a showroom assistant or other female member of the staff can be trained to this work, the usefulness of which cannot be exaggerated.

Works Visits.—These should include a display of gas utilisation.

Display.—To many of the public, the showroom window is the gas industry. They are not interested in the works. We cannot take too much trouble with our window displays. They cost time, money, and thought, but to win the reputation of having the most interesting window in the main street is worth a lot. Here, appliances are displayed at the point of purchase.

As to the actual selling, a lot of breath has been expended and a lot of ink spilled on technical jargon, the science of approach, riveting the attention, leading up to the sale, etc., but sympathetic and leisurely listening will do more to bring off a sale than all the talking under the sun. The choice of staff for our showroom and districts is most important. A really happy smile and a thorough appreciation of the consumers' point of view smooth more approaches and fill more order books than any pseudo scientific technique. I would put a happy and sympathetic smile right at the top of the salesman's assets.

It is very important that the sales staff and the showroom (not to mention the manager) should know exactly what is happening in the case of a particular job—who has or will carry out the work and when it was or will be done. For the sales staff to be able to promise an installation or attention to a complaint at a particular time and themselves be able to check up on their promise is worth a lot in the creation of goodwill. In a large undertaking something more elaborate would be required, in which case it would probably be dignified by the title 'progress department.'

The order or complaint, with as much information as possible, is written up in a duplicate book with gummed backed serially numbered slips. These are stuck on to the job-card proper and passed to the foreman fitter. Above his desk he has a rack of pigeon holes two for each fitter 'in' and 'out,' one for each day of the week for forward work and one for each of the following contingencies: 'awaiting consumer,' 'awaiting material,' 'service renewals,' and 'meters.' When

* Paper to the North British Association of Gas Managers, Oban, September 21, 1950.

a job is issued a note of the serial number is made on a daily sheet with the fitter's initials opposite and this is passed back daily, first to the showroom where the initials of the fitter are put against the duplicate copy of the job, and then to the manager, so that he can see how the fitters are employed. In this way the showroom staff can make a definite appointment for fitting work to be carried out.

In a town of our size, where the fitters are well known, it is not uncommon for a particular man to be asked to do the work. As far as possible this sort of request is complied with. In order that special orders for spares, etc., are dealt with promptly the storeman has access to the rack of cards and checks up on the ordering and draws attention to the delivery of such items. Two small points might be added. Should the fitter call at a house and find the people out, he leaves a 'not in' card requesting that facilities be provided for him to do his job at a specific time on the following day. Escapes and 'poor supplies' are given priority and usually one or more fitters are detailed to deal with these. In this case the fitter has direct access to the showroom for job-cards.

Good liaison and a happy spirit of co-operation between stores, fitters and showroom are essential to good service. The above methods have in our experience improved things enormously in this respect.

Customers' Thoughts

It is essential that those of us who direct policy and sales campaigns know what our customers are thinking. This is not always easy, particularly in the case of a quasi monopoly such as ours and for those of us who have multifarious duties to attend. It is here that intelligent meter readers and fitters can be invaluable, and for this reason, among others, informal discussions are to be encouraged. Casual cross examination of these ubiquitous members of our staffs is an activity, I am sure, most of us indulge in to advantage. Speaking personally, I learned more of the consumers' point of view during a spell of 'door bashing' in my junior days than any books have subsequently told me, and I do not willingly forego any opportunity of direct contact which comes my way now. I am sure that the board would find that occasionally to emulate the medieval kings who went about incognito to find exactly what their subjects were thinking, would be most revealing and helpful in the framing of policy.

I hold the view that every junior, no matter to what exalted executive position he may aspire, should spend some time calling upon consumers. It is upon their goodwill and custom that his future very largely depends and he must at all times view the service through the eyes of the consumer.

As a result of my own personal experience of selling on the district I have come to the following conclusions:—

(1) There is a lot of goodwill for gas where the service has been good.
(2) The consumer is surprisingly ignorant of many things connected with gas service that we take for granted.
(3) The major handicap to the installation of additional appliances is the lack of gas points and, in the case of old property, inadequate services.
(4) Selling is greatly facilitated if the salesman can quote an inclusive price.

Arising from these conclusions it has become fixed policy to:—

(1) Advertise to the fullest possible extent.
(2) Be ruthless in dealing with bad services.
(3) Fit gas points at every opportunity free of charge, and certainly in all new housing.
(4) In all but exceptional cases to have fixed inclusive prices for all apparatus.
(5) All appliances carry a five year guarantee with free maintenance during the period.

Some of these points are worth elaborating if only for their controversial value. It is to be hoped that none of us need persuading that advertising of high quality is a continuous necessity, nor do we need to be told that a ruthless drive to eliminate inadequate services when they exist is necessary. Our consumers cannot use gas they do not receive. It does not require much actuarial skill to discover that at least 4% of services should be renewed per annum as a matter of routine. In some districts due to past neglect the figure is, of course, much higher.

It is not, however, generally accepted that gas points should be provided free of charge. Let us take a concrete example to illustrate the point. Mrs. 'A' goes into a new house fitted with what I regard as a minimum gas service—a cooker, wash boiler, gas poker, and portable fire. The portable fire is of no use except in the living room where the poker/fire point is fitted, but if gas points exist in all the bedrooms the fire will be used there. If not then she must use an electric fire which may very easily find its way to the living room. In at least 50% of the houses with gas points in the bedrooms we find that gas fires are fitted within a year or two. The cost of fitting the carcassing pipe when the house is erected is roughly half of what it would be when the house is occupied, provided that the tenant can then be persuaded to go to the trouble of having floors, etc., lifted. As all gas fires are sold 'fitted' at an inclusive price, sales in respect of 50% of the points cover the cost of the free carcassing. Any additional fires sold are fitted at a considerable profit to the showroom account. This policy has been adopted in Hawick for some 15 years (it was not discontinued during the war) and I am convinced of its soundness, provided always that there is an active sales organisation. A very neat fitting is now available to enable a sink heater point to be provided.

During the last year, it has been found possible to resume the pre-war practice of a routine visit by the outdoor salesman to each installation a few days after the work has been completed. This is regarded as one of his most important duties and one which is very fruitful of further business. In the same way, arrangements are made to allow the home service adviser to visit cooker installations when the housewife is using a thermostatically controlled cooker for the first time.

Each appliance on the district is a constant source of revenue only as long as it is giving good and efficient service. The damage which a poor installation does is incalculable. Even the best installation, however, will not continue to give good service if it does not receive regular maintenance.

'Free' Maintenance

This subject of maintenance has come into prominence recently. It has been suggested that 'free' maintenance is now too costly to the industry. It is difficult to see the validity of such an argument. Either a thing is necessary or it is not. The question of price is a relative one only. In the case of Hawick with 6,000 consumers the cost of one visit per annum is less than 3% on the selling price of the gas, just under 2d. 1,000 cu.ft. A prominent engineer in the South stated recently that a charge for the service would be unpopular with the consumer but as the cost of gas couldn't carry it (why?) the consumer would just have to face it. We must not imagine that because we are nationalised we can adopt a take it or leave it attitude: the public will assuredly 'leave it.' Maintenance is absolutely necessary. We must provide the service and if we can conceal the charge it is surely good business to do so. In so far as the maintenance required is approximately proportional to the gas consumed it is equitable to make maintenance a charge on the gas.

An argument could, however, be made out for charging part of the cost to the appliance, particularly as some appliances require much more attention than others. In our own case an addition of only 7% would yield half the revenue required. Maintenance is certainly necessary and will continue to be as long as the gas contains objectionable sulphur compounds. It is a matter with which the consumer should not be troubled. It is an obligation on the gas supplier and a problem which in the best interests of the industry should be tackled boldly. In passing it is appropriate to pay tribute to at least one appliance manufacturer who, in the case of gas fires and circulators has, in our experience, reduced the necessity for maintenance to negligible proportions. Research is continually going on and we look forward to further developments in this direction.

Reference has been made above to the charges for appliances. Standardisation of these charges would have obvious advantages in the planning of sales campaigns on a large scale. It is generally agreed now that appliances should carry their selling costs but whether or not they should also carry the cost of all advertising and the cost of the showrooms is doubtful. As this paper is being written certain changes in the selling prices of appliances are taking place. To some extent the increases are necessitated by the substantial increase in gasfitters' wages recently negotiated. In our own case we have been working on a standard price for the Border District for some years. The arrangements were made under the auspices of the Domestic Development Committee of the former British Gas Council. Using these rates (approximately 25% above cost) it has been possible to show a profit on the showroom account sufficient to cover the free fitting referred to above. All sales, staff wages, and a proportion of administrative expenses are included.

Unequal Charges

It does appear, however, that selling and fitting costs are higher in some towns than in others, and if we are to have uniform selling prices then the lower cost districts will have to increase the percentage added to the cost price. While it is true that the cost of an appliance affects the number sold it does not do so to any extent where a forceful selling organisation is in existence. The extra 'profit' can be well spent in increasing the sales effort and the final result will inevitably be advantageous to the industry. In the case of appliances subject to purchase tax, however, these are almost prohibitive now, and it is unfortunate that an increase of price is necessary in this case. About purchase tax, I shall not trust myself to speak. There is absolutely no justification for taxing economy and cleanliness.

The value of a complete and up-to-date card index of all premises within the area of supply can hardly be overrated. Such a record is worth the spending of both time and money to acquire and maintain. In deciding upon the particular form the Hawick index should take, we consider the recommendations of the committee appointed some time ago by the North London District Salesman's Circle. The helpful advice of Messrs. Roneo, who supplied the equipment, enabled us to evolve a complete, versatile, and easily operated index.

Briefly.—The record cards are classified in street order, following that of the meter cards, with a heading card upon which entries are made for every house or other premises not included in the list of consumers. Thus if any house has been totally demolished or there are recent plots scheduled for building, action can be taken to ensure that these facts are not overlooked. Premises wholly electric are also included.

Card 1 is for established premises, and at the inception of the system a card is prepared for every consumer, classified under the address of the premises he occupies. Non-domestic consumers are distinguished by the use of a buff instead of a white card. Until there is a change of occupancy the card remains unaltered except for additions to apparatus and service details. When the premises change hands the section devoted to apparatus may become redundant owing to the removal of occupier's own apparatus, a new schedule of apparatus (Sheet B) applicable to the new consumer is inserted and the original entries are cancelled. Provision is made for four such changes. In designing the back of the base card the possibility of addition and modification to service pipe and metering installations has been catered for.

Plain signals for companies' appliances and punched signals for owners are inserted in the appropriate alignment for the apparatus, and remain in their position until maintenance service is due, when the signal will be moved to the left. Only when service is completed will it be put back in its normal position. Only the house number or name is required for individual records the street and district being clearly distinguished in the heading card also of a distinctive colour. Provision is made by interchangeable insert strips for nine classification of apparatus, five for combined domestic and non-domestic and four specially for non-domestic and industrial consumers. Credit and prepayment consumers are readily classified by a signal in the alignment marked CR and PP. Since a pre-paid consumer may change to credit it is necessary to use a moveable signal. Apart from the full address of the premises—included in case the card is removed from the system—we have provided a simple 12 months' date scale, which could if necessary be further sub-divided, to be marked by pencil or other means to indicate month when maintenance service under contract falls due.

The Census Card (Card 2) constitutes a precis of specialised information and is designed to be quickly removable without reducing the efficiency of the master record. The installation at the inception of the record and four subsequent revisions are provided for and further modifications can be made if required.

The Maintenance Auxiliary Sheets (Sheet A) provide for entries for all work undertaken. In the column headed CR (consumers' reference) the number of first, second, or third occupier, picked up from master record, is inserted. Maintenance agreements are recorded in the columns marked C or NC (contract or non-contract) and the number of hours analysed under the apparatus serviced.

The capital cost for 6,000 consumers is £300 and the cost of keeping the record up-to-date is approximately £250 per annum, which is equal to 0.06d. per therm or 10d. per consumer.

Such an index is worthless if not kept up-to-date. This is achieved by daily reference to the job cards and from salesman's reports.

The gas industry is often referred to as a two fuel industry It has been recognised for some time that gas and coke are complementary fuels, that it is just as important to maintain markets and prices for coke as it is for gas. Gas salesmen, and particularly gas managers, are coke conscious. At the same time it is generally agreed that so much good business is to be had at the expense of raw coal that it is unwise to expend energy replacing coke by gas unless fresh outlets for coke can be found.

Selling Coke

Before elaborating on the subject of selling coke, however, I would submit that reference to the industry as a two fuel industry takes no cognisance of current trends and needs. There are urgent and important reasons which ought to compel the gas industry to lose no time in becoming not a two fuel industry but a three fuel industry. To go on selling gas in ever increasing quantities with no regard to the economic disposal of tar and coke is unsound.

The gas industry is primarily a fuel industry with coal as raw material and producing three refined fuels, each with unique and special characteristics and particular applications—coke, tar, and gas. Properly applied these three fuels would meet all the requirements of modern industry. Between them they cover every fuel need and their extended use would result in an overall saving and enable the nation to export a greater quantity of raw coal. The 40 mill. tons of coal at present consumed in the domestic market at an efficiency of about 10% is a challenge and an opportunity. The gas industry must organise the sales side of its activities for all three fuels. What an opportunity it has. Consider the initial advantages—contact with every home and factory in all but very isolated districts, representatives in every town who are all more or less qualified combustion engineers, and a tradition and a reputation for public service. Here is an opportunity to expand our service as a three fuel industry with the local gas manager and his staff acknowledged experts in all fuel matters in their own district.

It is generally acknawledged that of all fuels a gaseous one is most convenient and efficient, and I believe that a day will come when complete gasification of coal will serve the nation's domestic and industrial heat requirements. The aim now should be to get the business with the fuels, solid, liquid, and gaseous, that we have. It will be a simple matter to convert them all to gas when complete gasification becomes economic.

Coal tar fuels played an important part in the war effort and the experience gained then should enable them to make a further contribution to the national prosperity and strengthen the economic position of our industry. Technical information relating to these fuels is available in a concise and practical form in the book published by the Association of Tar Distillers.* The following notes derived mainly from that source may be of interest.

The fuels range from C.T.F. 50, which is a specially prepared light creosote, to C.T.F. 400, which is a pulverised hard pitch. The specifications are as follows:—

COAL TAR FUEL 50 (CREOSOTE—GRADE A):—

This fuel consists of the oil or blend of oils obtained from coal tar and distilling above about 200°C. It is free from admixtures of petroleum oils or undistilled crude tars. It is practically free from inorganic acids and completely free from sediment and other impurities likely to choke the burners valves, etc. It complies with the following specification:—

Specific gravity S38°C/38°C...	1.15 max.
Viscosity (Redwood No. 1 at 100°F)	100 sec. max.
Water content	1.0% vol. max.
Matter insoluble in toluole ...	0.5% wt max.

Fluidity:—

Completely fluid down to O°C 32°F. and atomisable at ordinary temperatures.

Flash point (Pensky-Martens closed Test)	150°F. minimum.
Ash content	0.05% wt max.
Gross calorific value	16,500 B.Th.U./lb. minimum
Coke residue (Conradson) ...	3.0% wt max.
Sulphur content	1.0% wt max.

COAL TAR FUEL 100 (CREOSOTE GRADE B):—

As above except that at ordinary temperatures it generally contains a quantity of separated solids consisting mainly of naphthalene. It is not fluid or atomisable at ordinary temperatures but shall become completely liquid on being slowly warmed to 38°C (100°F) with stirring, and on cooling down it shall remain free from separated solids after standing two hours at 32°C (90°F).

COAL TAR FUEL 200.

This fuel is a stable homogeneous tar product free from admixtures of petroleum oils or undistilled crude tars and practically free from mineral acid, grit, and other foreign impurities. At room temperature it is thicker than an ordinary paint but much thinner, for instance, than Golden Syrup. The specification is as follows:—

Viscosity (Redwood No. 1 at 80°F)	5,000 sec. max.
Viscosity (Redwood No. 1 at 100°F)	1,500 sec. max.
Viscosity (Redwood No. 1 at 100°F)	1,000 sec. minimum.
Viscosity (Redwood No. 1 at 200°F)	100 sec. max.
Water content	1.0% wt max.
Matter insoluble in toluole ...	15.0% wt max.
Flash point (Pensky-Martens closed test)	150°F minimum.
Ash content	0.25% wt max.
Gross calorific value	16,250 B.Th.U./lb. minimum.
Sulphur content	1.0% wt max.

COAL TAR FUEL 250.

This fuel is a stable homogeneous tar product free from admixtures of petroleum oils or undistilled crude tars and practically free from mineral acid, grit, and other foreign impurities. At ordinary temperatures it is thicker than Golden Syrup. A suitable specification is as follows:—

Viscosity (Redwood No. 1 at 135°F)	5,000 sec. max.
Viscosity (Redwood No. 1 at 160°F)	1,500 sec. max.
Viscosity (Redwood No. 1 at 250°F)	100 sec. max.
Viscosity (Tar Viscometer (10 mm) at 30°C)	70—120 sec.
Water content	0.5% wt max.
Matter insoluble in toluole ...	23.0% wt max.
Flash point (Pensky-Martens closed test)	150°F minimum.
Ash content	0.3% wt max.
Gross calorific value	16,000 B.Th.U./lb. minimum.
Sulphur content	1.0% wt max.

COAL TAR FUEL 300.

This fuel is a stable, homogeneous tar product, generally straight run. It is practically free from mineral acid, grit, and other foreign impurities. The fuel itself is a black semi-solid substance which can be moulded by hand at ordinary temperatures. A typical specification for a fuel of this kind is as follows:—

Viscosity (Tar Viscometer (10 mm) at 55°C)	40—60 sec.
Water content	0.5% wt max.
Matter insoluble in toluole ...	26.0% wt max.
Ash content	0.3% wt max.
Gross calorific value	16,000 B.Th.U./lb. minimum.
Sulphur content	1.0% wt max.

The mean ring and ball test of this fuel is 36°C.

COAL TAR FUEL 400.

This fuel is the black, fusible, but normally solid product remaining after the direct distillation of coal tar to the point at which the product has the properties outlined below. It is practically free from mineral acid. At ordinary temperatures a piece of this fuel can be fractured by a sharp blow. The degree of hardness is generally expressed in the form of the softening point determined by the ring and ball method. A typical specification for this fuel is as follows:—

Water content	0.5% wt max.
Matter insoluble in toluole ...	30.0% wt max.
Ash content	0.75% wt max.
Gross calorific value	16,000 B.Th.U./lb. (appr.)
Sulphur content	1.0% wt max.
Ring and ball test	73—80°C.

PULVERISABLE COAL TAR FUEL.

A suitable specification for pulverisable coal tar fuel is a follows:—

Kraemer and Sarnow test ...	100°C minimum (108° C.R. and B.)
Ash content	0.75% wt max.
Gross calorific value	16,000 B.Th.U./lb. (appr.)
Sulphur content	1.0% wt max.

It is somewhat beyond the subject of this paper but, in passing, attention might be drawn to the possibilities of further development of fractional condensation of the tar in crude gas on the gasworks. If the coal tar fuel market is to be developed there are obvious savings to be effected by taking advantage of local markets and so saving carriage and also of the latent and sensible heat in the tar as it leaves the retorts. It is not proposed to develop the theme of coal tar fuels further on this occasion, so let us return to consideration of coke selling.

Most of our Scottish gas undertakings sell their coke through coal merchants. My experience leads me to believe that if this business were done directly and given the same careful service that is normally given to gas sales, coke sales could be doubled. To sell any commodity successfully there must be drive and enthusiasm, and it is fairly true to say that local retail coal merchants are interested in selling coke only when they cannot get coal or are asked specifically for coke.

It is generally recognised that coke must be graded for size. Very soon, I believe, grading for quality will have to be considered. The gasifying of inferior coke to keep it off the market is obviously a sound policy, but it also seems appropriate to charge more for a free burning, low sulphur, low ash coke from washed coal than for coke made from inferior coals.

* 'Coal Tar Fuels: Their Derivation, Properties and Application.' Edited by J. S. Sach and published by the Association of Tar Distillers, price 15s.

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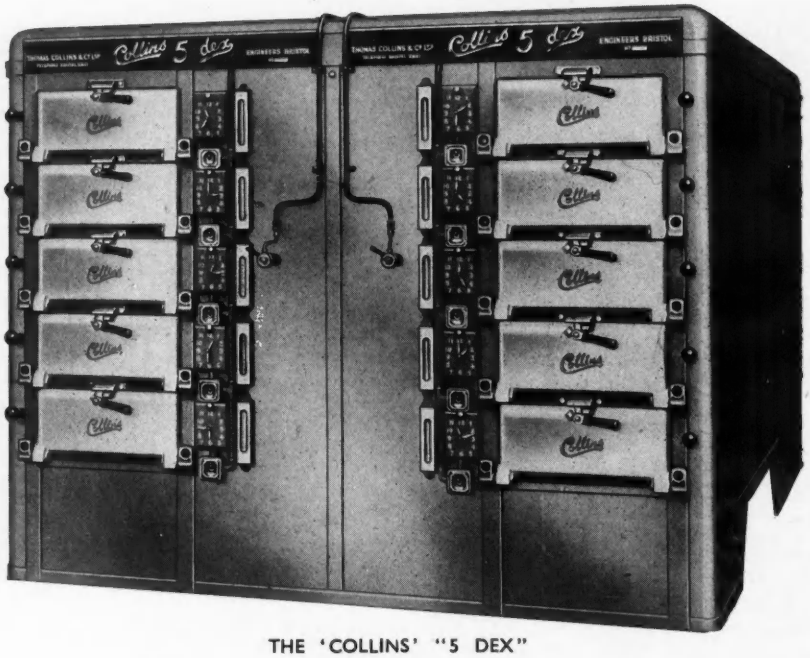

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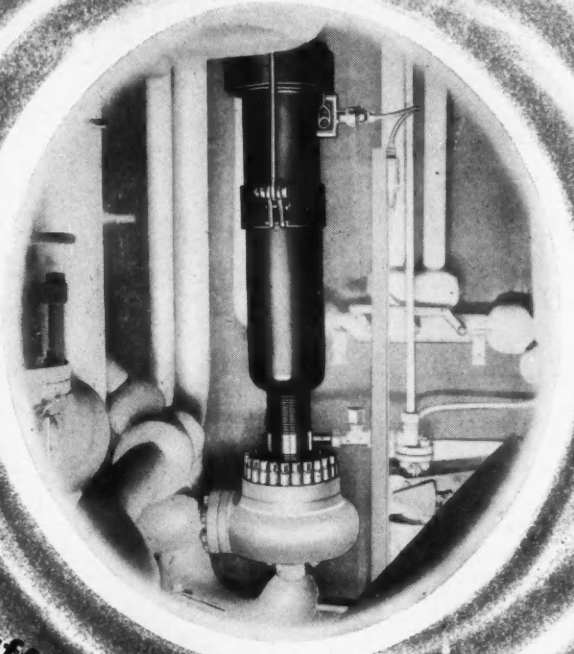

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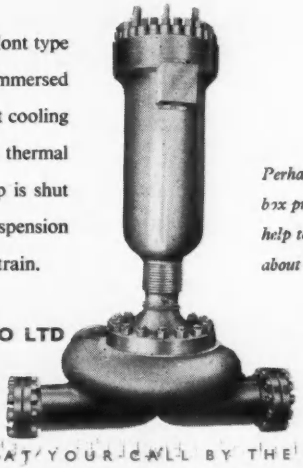

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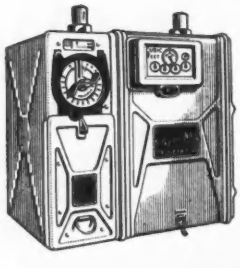

The BEGWACO GAS METER is an entirely new conception. "Tin and solder" methods are replaced by automatic precision engineering technique; older materials give way to corrosion-resisting light alloy die-castings. The result is a robust and remarkably accurate corrosion-resisting meter that is badged at 200 cu. ft./hr. without exceeding D.1 case dimensions.

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In Hawick about 60% of the coke is sold direct to the consumer and there are 1,180 domestic consumers. To begin with all domestic consumers were dealt with by monthly account, but the book-keeping involved was considerable. The Method now adopted may be of interest. Each consumer has a card filed alphabetically at the showroom. These cards are ruled off in squares and when coke is ordered and paid for at the showroom the appropriate card is withdrawn and the number of hundredweights ordered are entered. These cards are transferred to the works twice a day, when the coke is delivered the cards are date stamped over the number and returned to the showroom. This method is economical in time and rules out the possibility of error and at the same time provides a complete record of coke sales to domestic consumers.

An army of canvassers selling coke fires could most profitably be employed throughout Scotland. Thousands of coke fires are being sold every year by ironmongers and others who never mention coke and bought by people who do not know about either coke or gas ignition. No doubt they are burning raw coal most efficiently, but a great opportunity is being lost to sell both gas and coke.

Of the technical achievements in the gas industry, we, as gas engineers, may well be proud, but we have grand commercial traditions too. Did not the gas industry through the inspiration of the late Sir Francis Goodenough show the way in co-operative publicity on a national scale? We can look back with a good deal of satisfaction to the era between the wars when the now superseded British Commercial Gas Association and the Gas Light and Coke Company led the great drive which made the public aware of gas at a time when they thought that we were passing from the scene. What of the future? Technical progress will, I am sure, continue, but I suggest that it is in the commercial field that the greatest potentialities lie. We have had a slogan. I shall not attempt to dispute the truth of it, but I do submit that it is not enough. 'Profit in the retort house'—by all means. But in the home—'sales!'

And when the sales manager has done his job he must come back again to the engineer for more and larger mains to supply his hard-won customers. It is appropriate, therefore, that the second part of this paper should deal with the Hawick Distribution reinforcement scheme recently approved by the Scottish Gas Board. This is the responsibility of Mr. D. J. Colvin, Divisional Controller, Edinburgh and South Eastern Division, and it is seemly that it should be dealt with now by his Distribution Technical Assistant upon whom so much of the detailed work fell. I myself regard it as a good example of the co-operation between divisional headquarters and the district which we can expect increasingly to further the services we give to the community.

PART II by T. Gordon Bennett.

As a result of Mr. Cowie having put into practice at Hawick a very effective amount of his preaching, he had finally succeeded in arriving at a point where the distribution system which when laid down no doubt had ample reserves, was being loaded very much above its capacity. Although prior to nationalisation a considerable amount of mainlaying had been carried out on the extremities of the district, it was evident that a major reinforcement scheme had to be carried out.

Due to the increasing demands referred to, the existing mains system was badly overloaded. Pressure charts indicated deficiencies occurring even although an excessive holder pressure of 8.5 in. w.g. was operating on the district. During cold weather these deficiencies assumed serious proportions and reduced effective storage at the works to 25% of the nominal capacity.

The town was divided into 46 convenient sections each consumer present and potential being accounted for and listed. For the purpose of this paper only the summary in Table 1 is shown. This gives the peak instant demands for all consumers in each section and for the three stages in the development scheme.

Of the 1,100 new houses catered for, 1,000, if not built, are in the course of erection, or are houses to which the authorities, due to present estate roadwork, are definitely committed. The remaining 100 are scheduled but at present no definite site has been laid out.

For Stage 1 development, new houses in the course of erection only were taken. Industrial and commercial demands were estimated on the basis of existing consumers plus those consumers who would shortly install equipment requiring the demands shown. Existing conditions give a peak hourly demand per consumer of some 14 cu.ft./hr. (domestic plus other than domestic). The estimated initial development stage allows for a peak figure of 18 cu.ft./hr. per consumer. The increase in total peak sendout, amounting to 30,000 cu.ft./hr.—*i.e.*, 33⅓% above existing conditions—was as fine a margin as we could safely adopt, bearing in mind that between November, 1948, and November, 1949, there has been an increase of 15,000 cu.ft./hr., albeit with insufficient supplies.

Industrial demands likely to occur, but not with any definite degree of certainty, have been included in the later development stages.

It can be seen, therefore, that Stage 1 of the scheme being carried out is aimed to put right existing areas and meet increasing demands that can be reasonably forecast over the next few years.

A drawing was prepared showing the whole Hawick supply area sub-divided into sections for the purpose of point loading the demands which are anticipated. Main developments at each development stage were shown on this drawing. Another to show the flow and pressure losses relating to the mains forming the trunk feeders was prepared.

Slight increases in loads on the low pressure systems in the later stages are made possible due to neutral flow conditions in the low pressure feeders being located nearer the works as the load on the high pressure main is increased. This has the effect of increasing the carrying capacity of the low pressure feeders.

The following alternatives were considered:—

(a) Pressurising one of the 12 in. trunk mains going west. In order to carry out this, some 200 consumers would require independent governing. Many of the services would require replacement to withstand the higher gas pressures, and reinstatement costs would be heavy. We should also be faced, ultimately, with compressing gas to 9 lb./sq. in. at an approximate cost of at least 1d./1,000 cu.ft. Compression costs alone amount to almost the total charges of the scheme submitted.

(b) Substituting 10 in. main for 12 in. main again has somewhat similar results to (a) in so far as compression costs are concerned.

(c) Substituting a smaller diameter pressurised main in place of the 15 in. diameter.

Although at first sight this main may appear oversized, it is carrying a very large percentage of the total loads. The relatively short distance of main involved does not allow a sufficient saving of capital to be made by the substitution of a smaller pressurised main to cover the annual charges on booster and governor capital outlay, irrespective of compression costs. This main is giving a great deal of help to existing low pressure mains and enabling all foreseeable future developments within nearer areas to the works to be carried by low pressure system, and only gas which has to be transmitted to the outlying areas need be compressed.

We are fortunate that a small fan booster is at Hawick which was used some years ago before increased holder pressures were available. We also had a suitable motor to replace the existing gas engine drive. An allowance was made for the installation of automatic equipment to enable the boosters to operate automatically dependent upon the flow conditions through the 12 in. H.P. feeder main. Rate flow recorders with integrated meter index are being incorporated. The existing set is rated at 30,000 cu.ft./hr. with a 5 in. pressure lift.

Initial assessments of requirements are 24,000 cu.ft./hr. with a 4 in. lift. The booster is of the single stage variety, and

TABLE I.—*Distribution Reinforcement—Hawick District.*

Summary of Total Industrial, Commercial, and Domestic Hourly Demands (cu.ft./hr.)
Peak instant demands for domestic consumers at 15, 22½, and 30 cu.ft./hr.) for Stages 1, 2, 3 respectively

Section No.	Initial			Interim			Ultimate		
	Peak	Off peak	Night	Peak	Off peak	Night	Peak	Off peak	Night
1	4,880	3,340	114	6,020	3,910	171	7,560	6,780	528
2	765	1,782	38	1,147	1,973	57	2,030	2,165	77
3	1,975	987	79	2,762	1,381	118	3,550	1,775	157
4	1,305	652	65	1,957	978	98	2,610	1,305	131
5	790	195	19	985	292	29	2,080	890	39
6	4,425	2,362	206	6,487	3,393	309	8,550	5,425	412
				and similarly for all other sections					
Totals	119,915	70,245	10,747	198,260	120,871	16,420	268,130	163,615	23,392

TABLE II.—*Distribution Reinforcement—Hawick District.*

Summary of Compression Costs

Development stage	Total annual sales		Peak demand 1 year at 3 hours per day 23% of annual sales (high and low pressure) A, % annual sales (pressurised)				Off peak demand 1 year at 11 hours per day 65% annual sales (high and low pressure) B, % annual sales (pressurised)				Night demand 1 year at 10 hours per day 12% annual sales (high and low pressure) Not applicable				Total annual comp. costs
	Therms	1,000 cu.ft.	Vol. comp. 1,000 cu.ft.	Press. lift req.	Comp. cost d./1,000 cu.ft.	Total comp. costs £	Vol. comp. 1,000 cu.ft.	Press. lift req.	Comp. cost d./1,000 cu.ft.	Total comp. costs. £	Vol. comp. 1,000 cu.ft.	Press. lift req.	Comp. cost d./1,000 cu.ft.	Total comp. costs	£
Stage I	994,800	236,794	11,500 A, 4.9%	3.2	0.09	5	Compression not required				Compression not required				5
Stage II	1,478,972	352,129	35,000 A, 9.8%	16.1	0.23	34	70,200 B, 19.9%	4.9	0.11	32	Compression not required				66
Stage III	1,841,605	438.502	51,000 A, 11.6%	40.2	0.35	74	125,200 B, 28.5%	10.4	0.11	57	Compression not required				134

Note: Holder pressure assumed 6 in. W.G. Governor outlet pressure assumed 5 in. W.G. Cost of electricity 2d./unit.

TABLE IV.—*Distribution Reinforcement—Hawick District.*

Summary of costs	Annual cost £	Pence per 1,000 cu.ft.	Pence per therm	Annual cost £	Pence per 1,000 cu.ft.	Pence per therm	Annual cost £	Pence per 1,000 cu.ft.	Pence per therm
(*a*) Trunk mains	947	0.96	0.228	1,155	0.78	0.186	1,155	0.66	0.157
(*b*) Estate mains	233	0.23	0.055	607	0.42	0.100	878	0.48	0.114
(*c*) Compressors, governors, &c. ...	287	0.29	0.069	322	0.22	0.052	484	0.26	0.062
Compression costs	5	—	—	66	0.04	0.010	131	0.07	0.017
Totals	1,472	1.48	0.352	2,150	1.46	0.348	2,648	1.47	0.350

although some increase in capacity could probably be obtained by increasing the speed of rotation with a machine of this type only slight increases could be obtained due to the construction of the impellor. As no stand-by plant was available and loads were likely to grow quickly, it was felt advisable

TABLE III.—*Distribution Reinforcement—Hawick District.*

Development stage	Stage I Initial £	Stage II Interim £	Stage III Ultimate £
Capital costs :			
(*a*) Trunk mains	13,667	3,058	*Nil*
(*b*) Estate mains	3,361	5,416	3,858
(*c*) Compressors, governors, &c.... ...	2,480	300	1,400
Total expenditure at each stage... ...	19,508	8,774	5,258
Total cumulative expenditure	19,508	28,282	33,540
Annual charges on capital expenditure :			
(*a*) Trunk mains— %			
Interest 3.0			
Sinking fund 2.93			
Maintenance 1.0			
Total annual charge 6.93	947	1,155	1,155
(*b*) Estate mains—			
Interest 3.0			
Sinking fund 2.93			
Maintenance 1.0			
Total annual charge 6.93	233	607	878
(*c*) Compressors, governors, &c.—			
Interest 3.0			
Sinking fund 5.57			
Maintenance 3.0			
Total annual charge 11.57	287	322	484
(*d*) Compression charges (see Table II)...	5	66	131
Total annual charges and compression costs	1,472	2,150	2,648

to include in the initial stages a booster able to meet demands sufficient for interim development and which could be modified by the addition of further stages and increased impellor speed to cater for ultimate demands.

A 10 in. governor will be inserted to control supplies along the new 15 in. L.P. main. Governing will also be required at the end of the 12 in. pressurised main. In view of the importance of this latter governor point, it has been considered advisable in the second development stage to put in a further governor. Both governors are of 10 in. diameter, one of which could meet, if so desired, the maximum flow conditions, although for general operating conditions, both governors would share the load.

Stage 1 development requiring an estimated capital expenditure of £19,508 is proceeding. It is hoped to have this scheme in operation within two to three years. The cost of the scheme is shown in summarised form and it is interesting to note the relatively small effect which this development is estimated to have on the cost of gas. (Tables II, III, and IV.)

DISCUSSION

Mr. **W. C. Campbell** (Galashiels) said they knew Hawick for its enterprising gas undertaking. Mr. Cowie had pointed the way to better service facilities and yet they knew that these would cost more money, money which could only be found by the adoption of new technique and new methods of charging for the services rendered. Everything that went to provide that service cost twice as much now as it did 10 years ago, and if they wanted to extend and improve these services the cost would increase still further. To-day, the consumer was paying for service indirectly in the price he paid for gas. In many instances the price could not be increased and remain competitive. A flat rate made it hard to compete with electricity and the block rate only went part of the way towards easing the burden. The two-part tariff seemed to be the solution and they would look forward with interest to the research made up and down the country by the gas board into the problem. The new technique seemed to revolve round productivity and the output per man. When they realised that as a general rule some 25 to 30% of the price paid by the consumer represented wages and salaries—incidentally the greatest item, even greater than the net cost of coal—they realised how productivity was a matter of grave importance in their industry.

Mr. **D. Beavis** (Edinburgh) remarked that a previous speaker had mentioned the intensity of electrical competition, and the danger of raising the price of gas had been referred to by Mr. Cowie himself in a previous paper. It was therefore wrong if the price of gas had to carry the cost of maintenance when all that was neecssary, according to Mr. Cowie, was to sell gas appliances at a price which would give a proper contribution to that cost.

Mr. **W. M. Gledhill** (Stirling) said that Mr. Cowie was to be congratulated on a paper which disclosed his particular views and methods of developing sales of gas and residual products concurrent with fostering the goodwill of the public. In regard to the sale of appliances at an inclusive 'fitted' price, it was interesting to learn that that method was used to obtain additional profit at the expense of some consumers whose goodwill he wished to retain. Perhaps the consumers in Stirling were more price conscious or 'canny.' In that connection Mr. Cowie might explain whether the value of the appliances sold represented the total of 'inclusive fitted prices' or the total net selling prices 'exclusive of fitting charges.' In view of the instability of the cost of distribution materials and labour during recent years he had held the view that the sale of appliances should be carried out at fixed selling prices with the cost of fitting extra. The Stirling sales staff were able to give customers an approximate cost for the fitting of the common appliances, and that method had proved mutually satisfactory, the customer being therefore aware of the continuous rise in costs.

On the subject of coke sales, Mr. Cowie was fortunate to be situated in a district remote from coalfields. In the speaker's own district house coal was scheduled for sale at prices as low as 3s. 5d. per ton below scheduled coke prices and despite the fact that they had been grading their coke for 20 years they had not been able to compete satisfactorily with coal. He would like to ask Mr. Cowie if he encouraged local retail coal merchants to sell coke; it was obvious that the profit margin on the two fuels was the fundamental factor. The registration of coke consumers was also an obstacle to sales and could be dispensed with to their advantage in provincial districts.

Mr. **A. R. Bisset** (Douglas, Isle of Man) asked if Mr. Cowie prepared both tar and tar fuel and to whom he sold them. Did the cost of the small works justify the preparation and what proportion of the whole did he sell unprepared?

Mr. **Cowie,** in reply, asked why people should worry about the cost of maintenance being double what it used to be. The point was whether it was necessary or not. With due respect to Mr. Keillor it was the sulphur content in the gas and the corrodible substances of which appliances were made which caused most of the trouble. The person who had to do something about it was the person who was supplying dirty gas. In Hawick they maintained hired appliances for five years and then the consumer paid for maintenance. It was wrong that people who paid cash for their appliances should not have them maintained. When approached on the subject after five years people came to realise it was time they had their appliances replaced. There were gas cookers in operation which were 25 years old and when the electricity people got going they would have the chance to suggest that it was time something new in the electrical way should be installed. On advertising he could say that in his own district they went in for goodwill publicity in school and other publications. There was competition for cinema slide advertising. Poster sites had to be good, but there was difficulty in getting the posters. It was also becoming increasingly difficult to get material for window displays, which were important. Manufacturers could help more in this respect than they did. To Mr. Beavis he would say that if they wanted to extend they had to go out and sell. It was a dangerous attitude to say that gas would sell itself. He agreed that Mr. Gregg must have certain information before he could proceed with his publicity plans. To Mr. Bisset he would say that if he could use all his tar as road tar he would not sell it as tar fuel. The tar distilling industry had no sales force at the moment, but every gas engineer could ascertain the local needs. The position was going to become worse. Oil refineries were being erected and there would be thousands of tons of bitumen on the market.

Mr. **G. E. H. Keillor** (Airdrie) said that he had found it useful to advertise in local guide books and brochures to secure goodwill, and he took it that Mr. Cowie did the same thing. The cinema slide and the advance list of films were also useful media. Competitions could also be run both for school children and adults. Mr. Cowie had rightly pointed out that the cost of advertising was considerable, but they should provide liberally for it in their budgets and be prepared to meet the cost. He thought they should expend £1 for every million cubic feet of gas in a medium sized undertaking, the amount varying according to the size of the undertaking. People declared that certain forms of advertising were no good, but all kinds were required for certain specific purposes.

Mr. Cowie had spoken of the technique of selling in the showroom. He thought that the salesman should eventually

Member of the Manchester and District Section of the Institution of Gas Engineers visited the works of General Gas Appliances, Ltd., at Audenshaw on September 8. The photograph was taken at the luncheon at the Midland Hotel, Manchester, after the tour of the works. A report of the visit was published in our issue of September 27.

take charge of the interview with the customer, especially in difficult cases. The maintenance of gas appliances was a controversial point and he was not sure that the line of everything for nothing was the one they should take. No owner of a motor car expected free maintenance for ever, but only for a limited period, and the same thing should apply to gas appliances. The idea of maintenance should be sold with the appliances and the consumer prepared for it.

Mr. **R. J. Gregg** (Publicity Manager, Gas Council) said he was concerned with the good name of gas and had yet to be convinced that gas had reached its final and ultimate status. There had been a decline in manpower on the sales side since 1939 and a heavy burden lay on the minority left. Competition was an essential stimulant and they were going to get that from electricity. They had been told so by Lord Citrine, who had said that as soon as electricity was ready they would have a 'crack at gas.'

Mr. Gregg spoke of posters and films in preparation to publicise the industry and said that some 2 mil. people annually saw films dealing with gas. They were shown in schools, technical colleges, women's institutes, and other places, and he had great faith in the recruitment possibilities of these films. The more they could distribute them the better. They were also producing various publications, including one dealing with gas in the baking industry. If, of course, they did not know the number of bakers in the country or in any particular district it was difficult for him to know how many copies should be printed and circulated. He had to know how many were needed for the gas industry before the book went to press. They had a list of 160,000 names for the distribution of publicity material. Publicity had value only if directed the right way. Unless they knew what the consumer possessed they might be sending out publicity material about commodities already obtained.

GROUP WORKING

The following is our report of the discussion on the Paper by Mr. Norman C. Sturrock to the North British Association of Gas Managers (see last week's *Journal*)

Mr. **W. M. Gledhill** (Stirling) said that Mr. Sturrock's views on group operation were doubly welcome following so closely on the paper given by Mr. McDonald last autumn and the gas industry's progress during 1949-50. On the subject of administration one could not agree more with the author on the point of all those holding executive positions being kept fully informed upon the policy of the board and the discussion of current developments. By that means unnecessary misunderstanding could be eliminated and a spirit of helpful co-operation encouraged, particularly among officers in provincial areas remote from headquarters.

In connection with the rendering of assistance to medium and small-sized works it was suggested that such assistance, in certain circumstances, might be misunderstood as interference and tend towards the discouragement of the district official's initiative. That brought to his mind Sir Edgar Sylvester's recent remarks: 'The problem facing all large scale organisations, whether nationalised or not, is to preserve individuality. Original thought and initiative are needed now more than ever before, and a quiet confidence in the importance of one's job is essential to good work.' He thought that such an outlook should be fostered and encouraged at all levels. There was one aspect of the subject on which Mr. Sturrock had not commented, and that was the recruitment, education, and training of all types of personnel. One of the most serious problems today was the apparent lack of desire on the part of intelligent young people to enter the industry. The comparatively low standard of examination results in recent years and the shortage of suitably qualified young men able to accept responsibility was one of the most pressing problems now facing all boards. It was to be hoped that the free movement of all grades of personnel within not only an area board but the whole nationalised gas industry would not be restricted to the point whereby the industry would be regarded as just another branch of the Civil Service.

Mr. **G. E. H. Keillor** (Airdrie) said that one point arising from the paper was that the group assistants' duties and work were fully defined and were recognised by a series of official appointments. In a group of reasonable size that should surely accelerate production, promote efficiency, and result in benefit to the consumer. He would like to ask if Mr. Sturrock found the cost heading laid down by the board for compilation of the annual accounts sufficient or did he find it necessary to operate some subsidiary system to ascertain working costs? In regard to transport Mr. Sturrock had commented on the number of qualified mechanics required but did not give a lead as to how much work one mechanic could undertake. It would be useful if he could go into this further. His own experience was that there should be one mechanic for from 14 to 16 vehicles. It depended, of course, on the age of the fleet and on whether one looked to the manufacturer to recondition vehicles insted of carrying out the repairs oneself.

Mr. **E. G. Smith**, (Deputy Divisional Controller, Glasgow) said they had been fortunate in having a paper given by one whose experience of group working went back to pre-vesting days. The value of the paper was that it was a book of reference and a yardstick. They could measure their own experience in group working against an experience gained over 10 or 12 years. He felt that the upper limit of the size of a group might be determined by geographical conditions but the lower limit had to be imposed by the financial capacity of the group to employ economically the necessary personnel on the administrative and technical side, with good craftsmen. In a small undertaking what might appear to others a small job might be a real hurdle because the man in charge had not the staff to carry it out quickly. The help of a larger neighbour however, could do a great deal. In his own experience he had found it was not a case of one-way traffic. The large undertaking could get a great deal of help from the small one in many ways.

Mr. **A. R. Bisset** (Douglas, Isle of Man) said he was speaking as a gas engineer who was not nationalised. A very important thing had been left out of the paper—namely, a reference to the development of the individuality and personality of the district gas engineer. To his mind that was an important point. He had been for 25 years in the Isle of Man and had been appointed a Justice of the Peace; he had been President of the local Rotary Club and Vice-President of the Joint Industrial Council. These appointments were most important because he could go into the houses of high and low as a true democrat and a good mixer. More should be done for the gas industry in building up and encouraging the individuality of the gas manager in the area. If he had it in him and it was developed he could build up not only the group but the whole of the industry. Where he came from people thought of him as 'the gas man' and wanted to know what he had to sell against the other fellow. They had to have the confidence of the people and to get that confidence they needed both knowledge and power.

Mr. Bisset said that in Douglas they had taken a fine dance hall, brought over a splendid band, and put on a great show, stage demonstrations, and selling great numbers of appliances —all because he had a certain amount of power and knew what was best for the district.

Mr. **J. H. Hyde** (Institution Vice-President) said he agreed with a great deal of what Mr. Sturrock had said. The Gas Council had recently issued a publication dealing with the organisation of the gas industry and they would find that the same pattern of divisional or group control ran through the organisation set up in the several areas. Of course the geographical size of the groups, the number of consumers, and the amount of gas sold within those groups or divisions varied very considerably. The distribution of population, the arrangement of works, and other factors had to be taken into account in providing what might be termed a financial unit capable of independent organisation and yet not too large for the divisional manager to maintain close personal contact with all his staff. In his own area there were five divisions all different in character. The Tottenham division, which was Metropolitan, had a high density of population and a degree of centralisation with a linking of the major production works had been carried out, to a considerable extent by his former company. With its eight works it represented the largest division of the five in the Eastern area. It was one where centralisation had been carried out usefully to produce economy to the greatest extent. On the other hand there was the wide area of the county of Norfolk with 27 undertakings which together

only produced about one-third of the gas made in Tottenham. It required an entirely different organisation and within that division three sub-divisions had been set up operating from the larger centres where that group engineer and the officials could give that technical control over the smaller works. Results were obtained and conditions were better when the technical staff was available to help the small works manager who had done so much in the past, manfully shouldering a great deal of responsibility. There were things they came up against every day and the regional pattern set up had naturally been modified with the enlargement of their experience. On the subject of stocktaking he was in full agreement with Mr. Sturrock. Incorrect stocktaking with regard to major raw materials could completely vitiate their results even more than incorrect measurement of gas, and that was an important factor. Insufficient attention had been paid to the measurement of gas. An excellent publication had come from the Institution in 1938 on the way in which unaccounted-for gas should be estimated, but many of them were not living up to the advice.

Mr. Sturrock had made a point regarding the use of squads for special purposes, retort setting, painting, and other tasks. He himself had made some remarks on that subject at the summer meeting of the Institution. There should be a considerable saving accruing through their use. They had experienced that in the Eastern area. Within certain limits there was economy in using squads, but his experience was that they were not so mobile as the contractor's squads were. The men had never been used to that kind of moving about. As long as they could be utilised in an area where they could get home at night it was all right. But the environment in which they could be used was limited. There might be something in the idea of using an all-purpose squad capable of both painting and repairing holders. The latter job might fill in their time during that part of the year when painting was rendered impossible by the weather and a certain amount of repair work to be done. The employment of main-laying squads might be developed in certain areas, but it was not wise for them to take over the whole of the main-laying operations themselves. It was not easy to spread them out, particularly in the early stages where a great deal of integration work had to be done. A balanced use of one's own main-laying department plus the use of contractors was the best compromise.

In connection with Mr. Sturrock's reference to group sales officers he was strongly of opinion that both sales and service should be controlled by one man. They were indissolubly tied together. Fittings and maintenance of fittings should be controlled by the senior manager. One speaker had referred to the recruitment of personnel to the industry. He hoped that when the Sub-Committee on Education and Training produced its report to the Gas Council its scheme or recommendations would enable the industry to appeal to young men to enter it. They would have their difficulties as regarded recruitment because other industries had advanced pupilage schemes, like the automobile industry, some offered a short working week, and factory work had also its attractions. Their difficulties in securing staff were acute.

On the accountancy side Mr. Dyde said they had to consider carefully the extent to which they carried a costing system because of the expense of installing such a system. There was no point in producing a costing system giving one the cost of gas production into the holders unless the cost should be shown in a short space of time and the results acted upon. It would be a long time before they could apply such a thing to the rural areas, but in the centres where population was concentrated it was being done. Mr. Sturrock had made no mention of the internal audit system, an omission easily made, but it should be stressed in the nationalised industry. As far as central stores were concerned he could see no justification for them in widely scattered divisions or groups, but they could prove useful in concentrated areas.

Another point which had occupied his attention was the extent to which they should provide facilities for social activities, sports clubs and grounds and the like. There were two schools of thought on the matter. Some people felt they did not want to play with those they had to work with all day. One company of which he knew went to considerable expense to lay out tennis courts, but the female staff preferred to play elsewhere. The company extended membership of the courts to relatives of employees. Pleasing results followed when the need for recreational facilities was met, but he did not know the answer to the problem.

Mr. Sturrock, replying to the various points raised, said he agreed with Mr. Bisset that the district official meant a great deal to the district. The last thing they wanted to do was to rob him of his initiative and influence. If they took these away they would fail in their duty. Regarding education and recruitment he could say that in each group with which he had been associated it had always been the responsibility of a group official to handle these matters. In his present group the industrial engineer was responsible. He had been a lecturer in a local technical college and looked after the technical side while the group accountant was responsible on the clerical side. In reply to Mr. Keillor he would say that he thought a subsidiary system for the accounts was necessary. As far as transport was concerned it was difficult to lay down hard and fast rules. During the war years, in his own group, they had been able to obtain the services of only two mechanics and they could not cope satisfactorily with something like 40 vehicles. His own group took in York and Harrogate, with Scarborough 70 miles from the group office. They were setting up depôts at all three points and he expected there would be six mechanics to maintain between 70 and 80 vehicles. That worked out much as Mr. Keillor had suggested. He agreed with Mr. Smith's remarks regarding the size of the group. He would stress again that he did not want to undermine the district official's status. He was 'the gas man' in the district and they were behind him to see that he could give the public service. He agreed with Mr. Dyde that stocktaking should be emphasised as being most important. As far as the mobility of squads was concerned he had found that if the men could get home at week-ends they were quite happy. The cost of costing was definitely something to be watched because there were systems where the set-up did not justify the results. There was an internal auditor in the North-Eastern board and each group had an internal auditor appointed. They sometimes overlapped and on occasion the auditor from one group went to another group. On the subject of social activities they had organised one social evening in his group at which 700 people had been present, many of them travelling considerable distances. Every district had been represented, the Scarborough people coming in two 'buses to the function at Harrogate. Such gatherings fostered the team spirit without which they would get nowhere.

For The Disabled

Formally opened by the Queen on September 5, the Thistle Foundation at Craigmillar, Edinburgh, will provide, when completed, houses for some 140 disabled ex-Servicemen and their families. The scheme includes a clinic where medical attention will be available and eventually a chapel will be added.

The houses have specially designed doors which allow the ex-Servicemen—the majority of whom use self-propelled chairs—to open them without assistance.

The kitchens are well provided with cupboard accommodation and include gas-heated drying cupboards and Main No. 177 P built-in gas cookers.

The architects for the scheme are Messrs. Lorimer & Matthew, Edinburgh.

On the left is a general view of the Thistle Foundation housing scheme for disabled ex-Servicemen. The crest of the Foundation can be seen on the gable at the end of the building. On the right is a photograph of a kitchen interior.

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METAL-TO-METAL JOINTING MATERIAL

Ever since 1913 "PERMAC," the original Metal-to-Metal Jointing, has been holding up difficult joints in Gas Works and on Coke Oven Plants all over the world. Equally suitable for any joint—steam, water, gas, oil, benzol, ammonia, etc.—screw pipe or flange.

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Securities of Gas Undertakings

The Minister of Fuel and Power and the Gas Council make the following joint announcement with regard to payment of interest on British Gas Stock and on unvalued securities of Gas Undertakers.

Gas securities totalling 1,750 classes have been valued and included in Statutory Orders made by the Minister of Fuel and Power. Payment of six months' interest on the British Gas Stock issuable in lieu of these securities will be made on November 1 to holders on the registers at the close of business on September 25.

In regard to securities not yet valued and included in a Statutory Order, the Minister has issued a Direction under the Gas Act, that the Gas Council shall on November 1 make payments of interest to the registered holders at the close of business on September 25.

The amount of interest on those securities will relate to the period of six months to October 31. The interest will be paid at such rate on the nominal value of the old securities as is estimated to produce, in the opinion of the Gas Council, a payment not exceeding the amount of interest which will be found to have accrued in that period on the British Gas Stock ultimately issued in satisfaction of compensation for those securities. No provisional interest payment will, however, be made on November 1, 1950, in the case of securities on which no dividends or dividends averaging less than 1½% per annum were paid in the years 1944 to 1947.

In the case of securities the values of which are agreed between the Minister and Stockholders' Representatives but which are not included in a Statutory Order until after October 31, the Gas Council will arrange that as far as practicable the interest payment on November 1 will be the actual amount due for the third period of six months on the British Gas Stock to be issued in due course by way of compensation.

Where securities are valued and included in a Statutory Order made during the six months commencing on November 1 interest on British Gas Stock issued by way of compensation will be paid as from that date in the normal way, but if any amount is due by way of interest for any or all of the three preceding periods of six months (because the payments made on November 1, 1949, and May 1, 1950, and to be made on November 1, 1950, are less than the sums ultimately found to be due or because no payment was or will be made on those dates) the Gas Council intends to ask the Minister to issue a further Direction enabling it to make good the deficiency.

Dividends

Radiation, Ltd.—The Directors have decided to pay an interim dividend in respect of the year ending December 31 next on Ordinary stock at the rate of 5% actual, less tax (the same as last year) and to pay the half-yearly dividend be posted on October 31.

Metropolitan Gas Company, Melbourne.—The report of the Directors shows a loss on net revenue account for the year ended June 30, 1950, of £42,874. The balance brought in from the previous year (after payment of 1949 dividend) was £30,696, to which was added £15,000 transferred from provision for taxation and £81,000 transferred from reserve fund account, making a total of £126,696, so that the 1950 loss leaves a credit balance of £83,882. Payment of a dividend at the rate of 1s. per £1 stock unit leaves a carry-forward of £697.

Colonial Gas Association.—The Directors' report for the year ended June 30, 1950, records a net profit, after providing £43,000 for taxation, of £118,116. Adding the £13,138 brought forward and deducting interim and final dividends leaves a balance to the credit of the appropriation account of £25,402. The net profit is a return of an average of 5.89% on shareholders' funds. Final dividends make a total of 8% on preference shares and 6% on ordinary shares. Of the balance of £25,402, £10,000 is to be transferred to reserve. As a result of severe gas rationing during a coal strike in July and August last year gas sales decreased in the Association's works by 6% and in those of subsidiary companies by 0.8%.

South Australian Gas Company.—The Directors report a net profit for the year ended June 30 of £55,002, making with the balance brought in a total of £117,480. After payment of a dividend of 5% a balance of £43,730 is carried forward in profit and loss account. The year's accounts have been debited with £2,984 transferred to special purposes fund.

CORROSION, LTD.

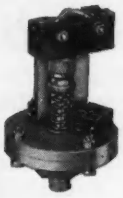
With the approval of the Registrar of Companies the name of Clear Glass Products, Ltd., has been changed to Corrosion, Ltd. For some time past the company has concentrated all its activities on corrosion problems. Particular emphasis has been laid on the use of new materials and new methods in dealing with corrosion. The policy is to go for tailor-made materials, specifically designed to cope with particular problems. The personnel remains unchanged. The Managing Director is Dr. Harry Barron, F.R.I.C., F.I.R.I., F.P.I., operating from the works at Warsash, Hampshire (Telephone: Locksheath 3372). The Sales Director is Mr. J. M. Paynton, M.B.E., working from 351, Coastal Chambers, Buckingham Palace Road, London, S.W.1. Among the products handled by the company are Avigel 100 strippable protective coating, Avigel 150 permanent anti-corrosion coating, Avigel GP hot melt plastic peel, Glopane cold galvanising, Glocrete coating for concrete, and Tropal aluminium anti-corrosive.

A catalogue showing the wide range of ladders, barrows, trucks, trollies and many other products of interest to the gas industry has been produced by **Bardsleys-Colchester Ltd.** Many of Bardsleys products are exported and the catalogue B/C 1950/100 is well-worthy of them and should prove of assistance.

Lerwick. The Scottish Gas Board has approved a scheme to extend the gas main in Lerwick at a cost of £7,500 as a first step towards modernising the gas undertaking in the town.

PRESSURE SWITCHES

For Steam, Air and Liquids up to 500 lbs. per square inch. *Ask for List 119/GJ*



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RETORTS MADE GAS TIGHT
when patched with—

ONX SUPER 83 BRAND FIRE CEMENT

A recent testimonial from Gas Dept.
"We are pleased with results obtained after using ONX Super '83' Brand. "Our settings were very bad, with large cracks in retorts, and portions of wall actually collapsed.
"Now, six months after repairing 28 retorts they appear as sound as ever: we anticipate the life of the settings will be prolonged."

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MALLEABLE PIPE FITTINGS
OVER 4000 SIZES
INDIVIDUALLY AIR TESTED
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FULL THICKNESS THROUGHOUT

Fit and forget!

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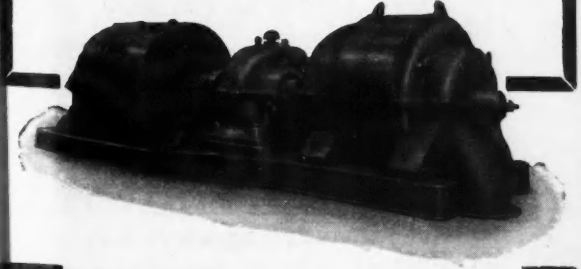
"Wask" Up and Down Patent Lamp Suspenders, the NON-DISCONNECTING raising and lowering gear.

WALTER SLINGSBY & CO., LTD.
NEW DAM WORKS - - - KEIGHLEY
Phone: Keighley 3749 (2 lines). 'Grams: Malleable Keighley

TURBO-COMPRESSORS & EXHAUSTERS FOR AIR AND GAS.

* * *

We build a complete range of Compressors & Exhausters for air and GAS, suitable for all purposes connected with the GAS industry, including Turbo-Compressors for large capacities, as illustrated below.



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REAVELL & CO., LTD.,
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WHAT kind of hands? Skilled hands — nimble hands—above all, healthy hands. Keep a special watch on those processes in which bitumen, pitch, tar, oils and solvents may result in dermatitis—that means hands that are lost to production. Where Rozalex barrier preparation is used, output is never endangered by dermatitis, or by the fear of dermatitis, which can be almost as crippling. Rozalex is simple to apply, and forgotten by the user when applied. There is a type of Rozalex to act as a barrier against almost every known industrial irritant. Our technical representative is at your service. Write to Rozalex Ltd., 10 Norfolk Street, Manchester 2.

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Driving and Conveyor Chains of the best quality; made of Ley's Celebrated Blackheart Malleable Iron.
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Impervious to Main Liquor and Climatic Influences.

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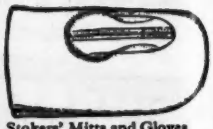
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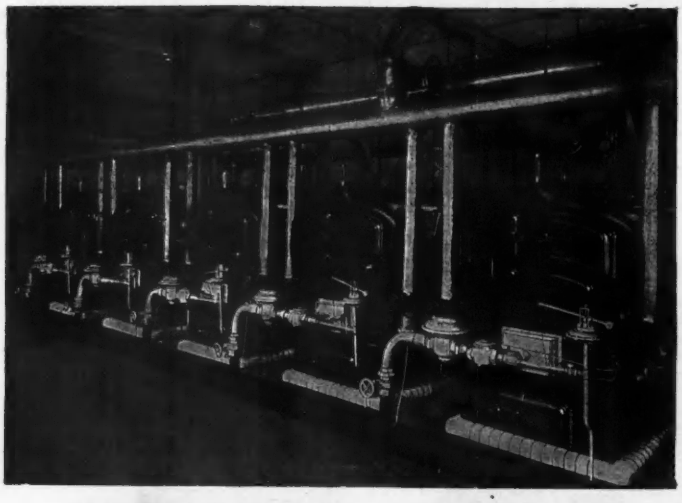

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The "Gas Journal" is published every Wednesday, price 1/-; by post 1/2d.

Subscription Rates: Home and Empire :- 45/- per annum; Foreign :- 52/- per annum. (Both payable in advance.) A copy of the "Gas Journal" Calendar & Directory is presented each year to continuous subscribers.

Classified Advertisements: All small classified advertisements are charged at 1/6 per line (approx. 7 words) - minimum charge 7/6. A Box Number address occupies 2 lines, and a further 6d. is charged towards cost of postage on replies. Copy must be received by first post on Monday to ensure insertion in that week's Journal.

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BUSINESS MANAGER: S. T. CULLEN

MIDLANDS OFFICE: 10, Union Street, Birmingham.

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Looks like iron, can be buffed burnished or drilled and automatically caulks itself into any joint.

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OPERATING ENGINEERS required. Age 21 to 25. Must have experience of operating gasworks and coke oven carbonising plant. Permanent jobs for suitable men.

Apply in writing, giving particulars of age, education and experience, to the Personnel Officer, The Woodall-Duckham Co., 63-77, Brompton Road, London, S.W.3.

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TECHNICAL ASSISTANT.

APPLICATIONS are invited for appointment as TECHNICAL ASSISTANT to the Scottish Gas Board at Headquarters at a salary within the range £850-£1,250 according to qualifications and experience.

Details of terms and conditions of service and of duties may be obtained from the undersigned with whom applications should be lodged by October 23, 1950.

6, Randolph Crescent, Edinburgh, 3. A. T. HEAD, Secretary.

THE Gas Council have a vacancy for a TECHNI-CAL OFFICER to assist in development work on coke utilisation. Applicants should have a good knowledge of heating engineering and be able to develop existing and new types of coke furnaces for special purposes. Good engineering drawing experience, preferably on the design of furnaces, is desirable.

Commencing salary £650 per annum.

Applications, stating age and giving full particulars of qualifications and experience, should be sent to the Secretary, The Gas Council, 1, Grosvenor Place, London, S.W.1.

NORTH WESTERN GAS BOARD

BLACKBURN GROUP.

SENIOR HOME SERVICE ADVISER.

APPLICATIONS are invited for the above position.

Candidates should be qualified in Domestic Science and be experience in the use of domestic cooking and heating appliances and in organisation of cookery demonstrations, lectures and district home service calls.

The commencing salary will be within the range £360-£424 per annum.

The successful applicant may be required to pass a medical examination and to subscribe to such scheme of superannuation as the Board may adopt in the future.

Applications, stating age, qualifications and experience, together with *copies* of two recent Testimonials, should be forwarded to the undersigned within 14 days from the date of this advertisement.

A. H. NICHOLSON, Group General Manager.

Cardwell Place, Blackburn.

(*Classified advertisements continued on Supplement 4*)

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STEEL SECTIONAL TANKS: 36 ft. by 12 ft. by 8 ft., 12 ft. by 8 ft. by 5 ft., and two 16 ft. by 8 ft. by 4 ft.
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18,000 cu.ft. per hour BELLIS & MORCOM COMPRESSOR. Pressure 180 lb. p.s.i. Two-stage, twin cylinder. Motorised 86 h.p. induction motor for 400/3/50 supply.
9,000 cu.ft. per hour WALLER COMPRESSOR. Pressure 60 lb. p.s.i. Single-stage. Motorised for 400/3/50 supply.
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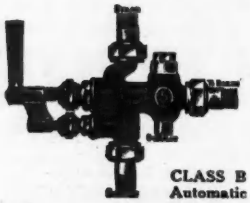

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Automatic

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Hammer too big I'll be bound.
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IT SIMPLIFIES *ALL* SOLDERING

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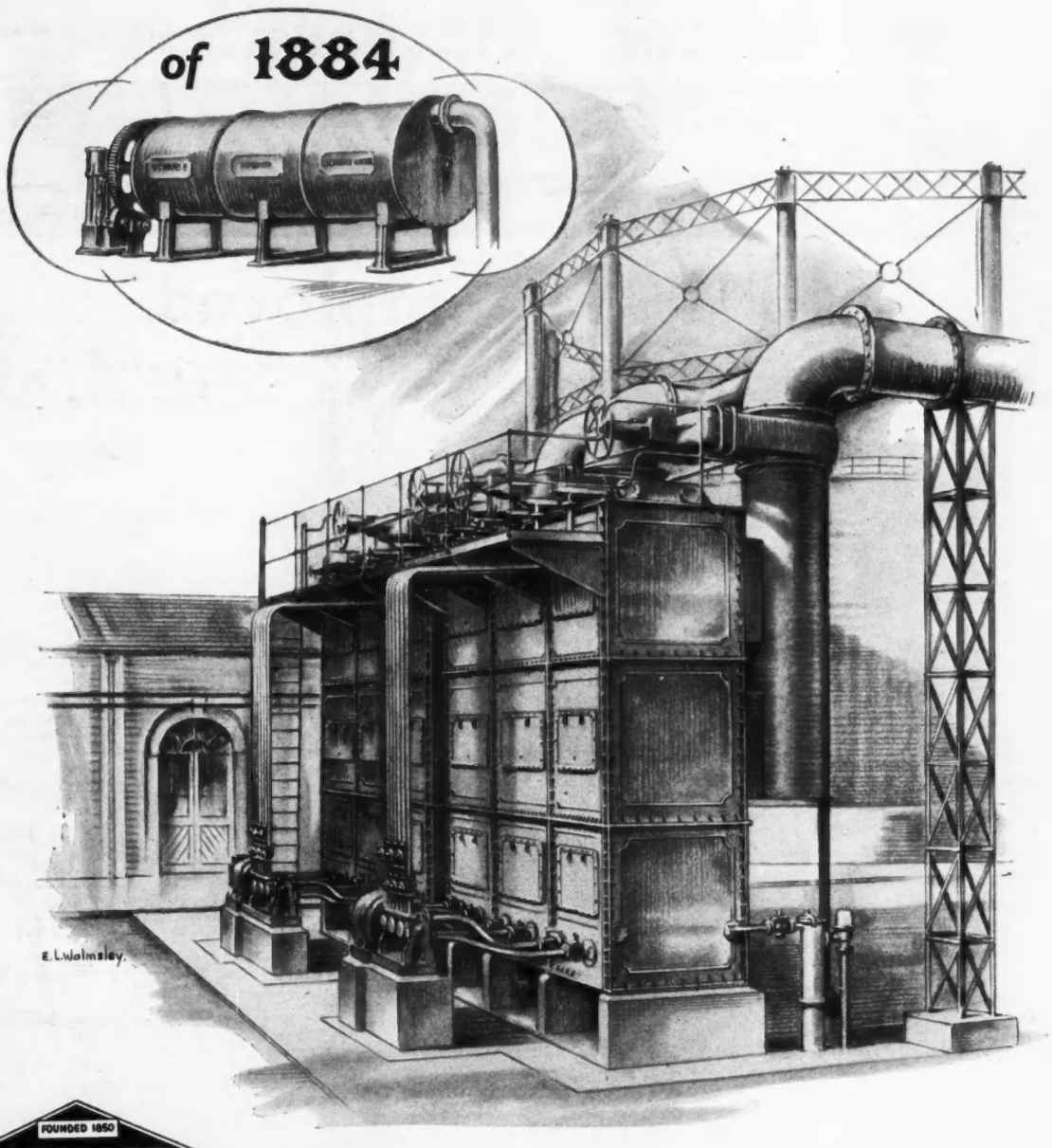

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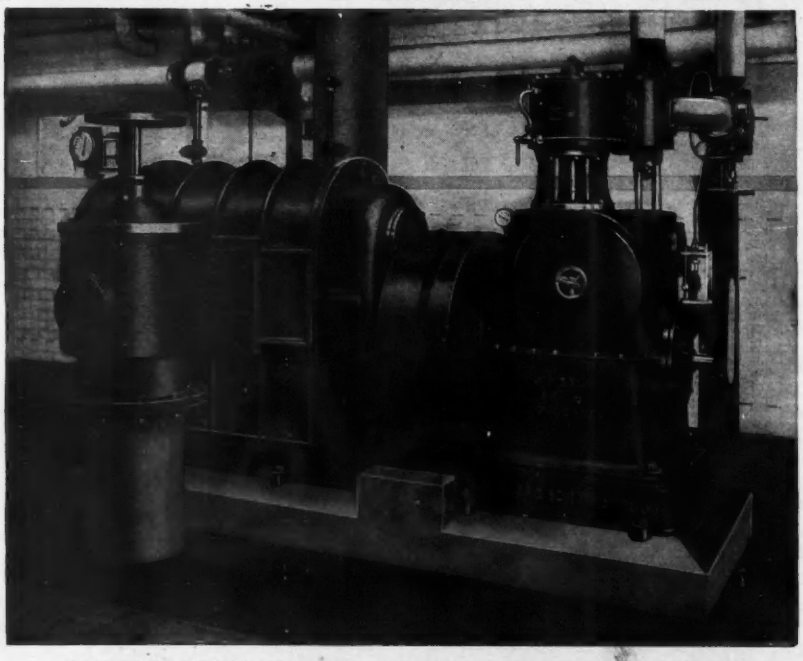

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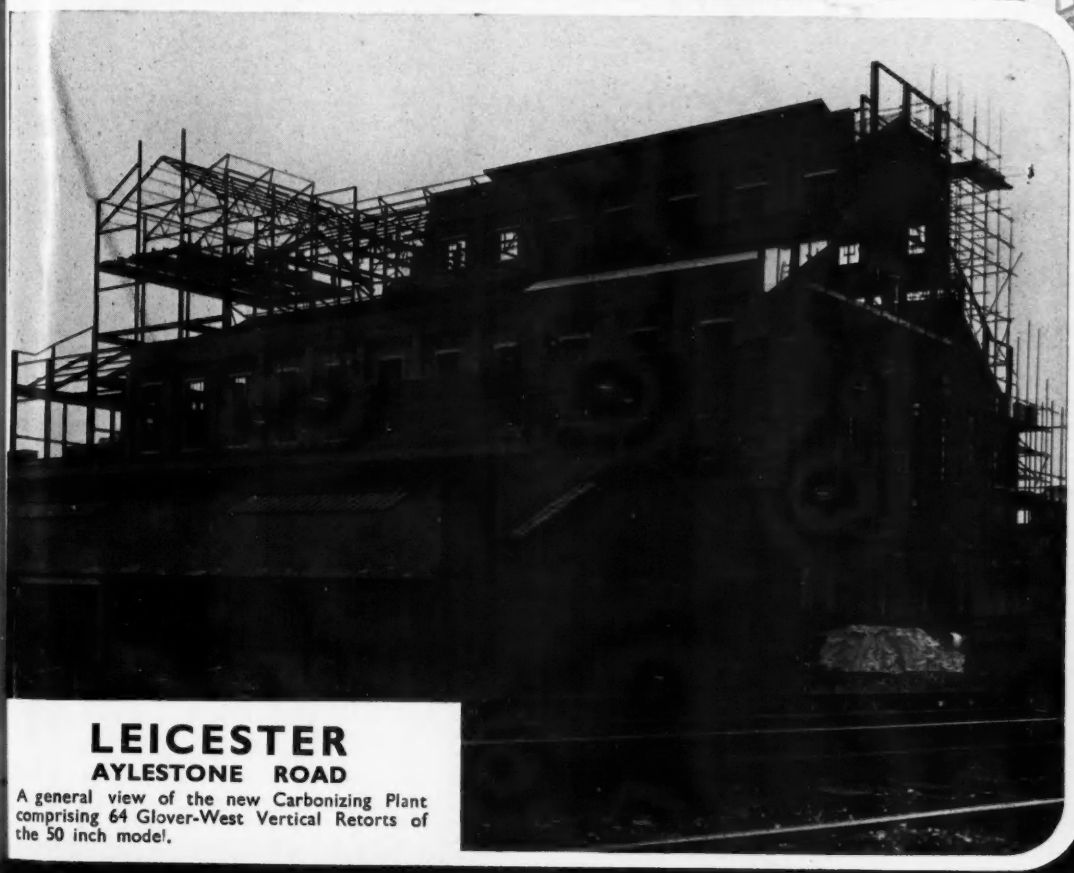

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